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ABSTRACT

Prompted by concern that the State of New Jersey driver's manual was too difficult for many low-skilled readers to read and comprehend, a study was conducted in which chapter 6 of the driver's manual was rewritten, lowering its readability level from grade 8 to grade 6. It was hypothesized that significant differences in comprehension would result between low ability students reading the manual in its present form and those reading it in the revised format. Comprehension of the rewritten and the original manual was compared using cloze tests developed from a passage in chapter 6. Two test forms, based on the published and the rewritten versions of chapter 6, were randomly administered to 74 ninth and tenth grade students with reading comprehension scores of 7.0 or below who had not taken driver education. Results showed that comprehension of the rewritten passage was significantly greater. Furthermore, students read the rewritten passage faster and with greater ease. (Appendixes include (1) chapter 6 as printed in the state of New Jersey Driver Manual, (2) rewritten chapter 6 from the driver manual and glossary, (3) original and rewritten passages used for the cloze test, and (4) cloze tests used for testing comprehension on original and rewritten passsage.) (Author/HOD)

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THE COMMUNICATIVE EFFECTS OF A REWRITTEN DRIVER MANUAL

A THESIS

SUBMITTED TO THE FACULTY

OF THE GRADUATE SCHOOL OF EDUCATION

OF

RUTGERS

THE STATE UNIVERSITY OF NEW JERSEY

BY

SUZANNE MAHN HUNT

IN PARTIAL FULFILLMENT OF THE

REQUIREMENTS FOR THE DEGREE

OF

MASTER OF EDUCATION

NEW BRUNSWICK, NEW JERSEY MAY, 1982

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CS007435

THE COMMUNICATIVE EFFECTS OF A REWRITTEN DRIVER MANUAL

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COMMITTEE CHAIRPERSON: Edward Fry, Ph.D.

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ABSTRACT

This study developed from a concern that the readability level of the State of New Jersey Driver Manual was too difficult for many low-skilled readers to read and comprehend. The purpose of the research was to discover whether rewriting a passage from the Driver Manual making it easier to read would increase its comprehension by deficient readers in high school.

The following hypothesis was proposed.

There will be a significant difference in the comprehension of a section of the State of New Jersey Driver Manual between students who are deficient readers and who read the manual in its present format and those who read it in a revised format with the readability level lowered to grade 6 or below.

Chapter 6 of the State of New Jersey Driver Manual was rewritten lowering its readability level from grade 8 to grade 6 using suggestions proposed by Flesch (1949, 1960, 1974), Fry (1977, 1979), and Klare (1980). Comprehension of the rewritten and the original manual was compared using cloze tests developed from a passage in Chapter 6 and designed according to the criteria of Bormuth (1967). There were two test forms, one based on the passage in Chapter 6 as published and the other based on the same passage rewritten. These tests were

administered randomly to 74 ninth and tenth grade students who had reading comprehension scores of 7.0 or below and had not taken driver education.

Raw scores, tabulated as exact word replacements, were converted to percent correct scores, permitting comparison of original and rewritten passages and permitting results to be compared with comprehension criteria of Bormuth (1967). Comprehension of the rewritten passage was significantly greater. The mean percent score for the rewritten passage was 48.97 correct compared to 25.59 correct on the original passage. The difference between these scores yielded a t score of 10.15 which is significant at the .001 level of confidence. Test results also showed students reading the rewritten passage faster and with greater ease.

This study indicates that rewriting a passage at a lower readability level produced a significant increase in the comprehension by low-skilled readers and enables them to read it faster.

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This thesis is dedicated to the students of the Resource Room at the Princeton High School where the idea was conceived and developed.

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CHAPTER I

INTRODUCTION

Nearly every high schcol boy or girl, regardless of social status or economic position, wants to drive a car. It is part of today's rites of passage, the transition from childish dependency to adult independence (Conger, 1977), to earn the privilege and right to drive by passing the state driver examination. Implicit in the process leading up to the passing of the written examination in the State of New Jersey is the mastery of the State of New Jersey Driver Manual, a small booklet of less than one hundred pages containing the information deemed necessary for safe and informed driving.

There is a broad range of individual differences in the reading proficiency of high school students (Harris & Sipay, 1975). Despite the distribution of reading abilities among these students, all those who take driver education are expected to read, comprehend and retain the information provided in the State of New Jersey Driver Manual. Mastery of the manual is determined by a score of 80 percent or more correct on a written examination provided by the New Jersey Department of Motor Vehicles.

For the average or above average reader, this exercise presents no particular challenge. For the below grade level reader however, and especially for the student who has reading abilities significantly below grade level, the task of learning the material in the state's driver manual can be a difficult one.

An interview with a special education teacher at Trenton Central High School revealed that only two students with whom he had worked in the last twenty-three years passed driver education. He emphasized that this was mainly because the driver education department would not accept students from special education into their program because they claimed that the students did not read well enough.

Marlene Atkins, Director of Driver Education at the New Jersey Bureau of Motor Vehicles, stated that about 25 percent of the students failed the driver education test the first time they took it. She said that many teachers, especially those who had special education students mainstreamed into the classroom, had expressed a concern about the inability of these students to read the manual and take the driver examination.

In some high schools the reading specialist helps the students with reading difficulties master the manual. In some schools the manual is put onto tapes and reading is bypassed altogether. With the passage of the New Jersey

Assembly Bill 177 in February, 1982, special education teachers may now administer the state driver examination orally. All of these actions have helped the high school student pass the driver examination; but they do not touch the heart of the issue which is a Driver Manual written at a reading level too high for many low skilled students to read and adequately comprehend.

Because of strong interest and motivation, some disabled readers are able to read the manual that any readability formula would indicate is beyond their level. There is evidence, however, that not all high school students are able to read and master the information in the Driver Manual. The National Highway Safety Administration admitted that many people with a basic language problem found the task of reading the driver manual and understanding the test questions almost impossible (McKnight & Green, 1977). The reading disabled high school student not able to read the manual faces a dilemma. To learn the necessary body of information many potential drivers have no alternative but to have the manual read to them by another individual and to be tested orally.

This evidence indicating that the State of New Jersey Driver Manual is too difficult for many low skilled readers, suggests that the Driver Manual might better serve its function as literature for the training of responsible drivers if it were rewritten at a lower, more

readable level.

Hypothesis

The following hypothesis is proposed for this study.

There will be a significant difference in the comprehension of a section of the State of New Jersey Driver Manual between students who are deficient readers and who read the manual in its present format and those who read it in a revised format with the readability level lowered to grade 6 or below.

Importance of the Study

In the preface to the State of New Jersey Driver Manual the governor writes, "Driving is a privilege, not a right ...Keep this in mind and observe the rules laid out in this book." The attorney general says, "...Read and learn as much as you can. Your life may depend on it, and the lives of other motorists may depend on your being a safe driver." The director of the Division of Motor Vehicles states"...The knowledge you gain from this manual will help make you a safe, courteous driver, enabling you to avoid the pitfalls of poor driving and the penalties resulting from violation of the law."

The manual is intended to serve not only as a text for the written driver's examination, but also as a continuing ready reference for every driver on the road. It seems important, therefore, that the information it contains be available to all readers, regardless of their

reading skills.

Herber (1978), in discussing readability and reading ability, pointed out the need to admit the existence of differences in ability and achievement and to discover ways to accommodate these. He also stated that a student-centered curriculum, one that acknowledges the importance of students' interests without abandoning subjects held valuable, is the secret to interest in learning. An attempt to make the Driver Manual readable for low skill readers speaks to these and other needs.

Driver education holds a unique motivational appeal. It can serve as a vehicle for information acquisition as well as a stimulation for interest in school in general and a means for reading instruction and vocabulary acquisition. All of these can serve as reasons for providing as many students as possible with a manual which is suited to their reading skills at a non-frustrational level.

Definition of Terms

For the purpose of this study, reading ability is defined as the Reading Comprehension subtest score on a standardized reading test. The three standardized reading tests used for this purpose were the California Achievement Test: Reading, 1970 Edition; the Gates-MacGinitie Reading Tests, 1978; and the Nelson Reading Test, 1962.

For the purpose of this study, average to above average readers are those who scored above 7.0 in Reading Comprehension on a standardized reading test.

For the purpose of this study, deficient readers are 9th and 10th grade students who scored 7.0 or below in Reading Comprehension on a standardized reading test.

For the purpose of this study, readability is expressed as a reading grade level as determined by the Fry Readability Formula (1977b).

For the purpose of this study, comprehension of the Driver Manual is measured by a criterion reference cloze test on an experimental passage from Chapter 6 of the State of New Jersey Driver Manual. Based on Bormuth's research (1967), 43 percent correct on a cloze passage, using exact replacements, would indicate comprehension at an instructional level.

Limitations of the Study

The findings of this study will be limited by:

1. The size of the sample.

2. The limitations of any readability formula in accurately indicating the reading level of a particular selection of written material, particularly material of a vocational or technical nature.

3. Variations in the interest and background information brought to the study by the high school students.

4. The limitations of a cloze test in calculating the reader's comprehension of a written passage.

5. Aspects of rewriting that make a passage more readable but are not measureable by a formula.

6. Use of different standardized reading tests in determining reading comprehension of students to be used in the study.

Overview of the Study

The purpose of this study is to make a segment of the State of New Jersey Driver Manual more readable for the low skill reader by rewriting it. In exploring the subject of readability and writeability, the study will attempt to point out the characteristics of written material that make it more readable and ways of judging the readability of written matter. It will then apply this knowledge to the rewriting of a segment of the Driver Manual for the State of New Jersey at a reading level of grade 6 or below.

As a means of testing the success of the rewriting of the section of the Driver Manual, a portion of the rewritten manual will be given to a random selection of high school students who are disabled readers along with the same selection in its original form in a cloze format exercise. The results will be compared to see if comprehension is greater on the rewritten selection.

Research in the study will include studies on

vocational and occupational literature by Thornton, studies on reading for the job by Sticht, studies on readability and writeability by Klare, Fry and Flesch, and studies on the readability of graphs and charts by Fry. It will also include research on the cloze procedure and its relationship to the measurement of comprehension by Bormuth.

CHAPTER II

REVIEW OF THE LITERATURE

"No one knows how much is wasted each year on instructional materials that are too difficult for many students to understand" (Bormuth, 1967, p. 291). Thus Bormuth began an article in the Journal of Reading concerning the readability of educational material. Rudolf Flesch (1949) has addressed himself to the same concern: the appropriate matching of the reader with the reading material. Flesch wrote, "If you force children to study a book that is over their heads, they will not only fall behind in their education but will have a miserable time in the bargain" (p. 147).

In approaching the task of lowering the readability level of the New Jersey Driver Manual to enable disabled high school readers to read and understand the content with greater ease and comprehension, three basic problems will be addressed:

1. What devices are available for predicting the probable difficulty of the written material for the reader?

2. How does one rewrite readably in order to alter

a piece of written matter and lower it to an easier reading level?

3. What is the most dependable method for judging the students' comprehension of a particular written passage?

Readability Formulae

Humans have historically sought to find devices to make predictions, using numerical formulae, that yield significant, accurate, reliable, valid and quickly tabulated results. This desire has characterized the search for a device to predict the readability level of a written passage.

Readability has been a concern since Lively and Pressey in 1923, but it was reading specialists and researchers who were mainly interested in the subject at that time. In 1939, Lorge built a readability formula followed by Flesch in 1943, Dale and Chall in 1948 and Spache in 1953. Publishers became aware of the readability level of their books when teachers began to inquire about the subject. The commercial concerns of these publishers furthered this great interest in readability.

Klare (1974) described the devices developed since 1960. He included in his summary the criteria used in formula development as well as the predictive ability of

that formula and cross-validation data. Klare pointed out that the user has almost too many formulae from which to choose. He provided a set of guideposts for choosing from among the formulae reviewed. The user must choose the formula geared to his or her particular needs. The user must also decide if a machine is to be used in analyzing the formula, or if the results are to be analyzed manually. Klare believed that little is to be gained by choosing a complex formula. His opinion was that a two variable formula is sufficient as long as one variable is semantic and the other is syntactic. When each is considered singly, the semantic or word variable is consistently more predictive than the syntactic or sentence variable. Counting word length gives a slightly more predictive index than counting sentence length. The sentence variable has an important contribution to make to formulae, though it is not as predictive of difficulty as a word variable. Sentence complexity is probably the real causal factor in difficulty, but sentence length correlates very highly with complexity and is much easier to count. In pointing out that the two simple variables of word length and sentence length are sufficient to make relatively good predictions of readability, Klare (1974) emphasized that it is not intended to argue that these alone cause ease or difficulty. They are only indices of difficulty. In

considering the rewriting of material for a lowered readability level, simply altering the word or sentence length does not guarantee improved readability. Nevertheless, he pointed out that simple word and sentence length provide satisfactory predictors for most purposes.

Klare (1974) considered six formulae developed before 1960 and twenty-four formulae developed after 1960. This was not a skewed selection process. It is an indication of the relatively recent concern with the grading of materials and the readability of printed matter.

Many of the formulae developed are quite complex and require extensive mathematical computation. An example of a complex formula is that of Lorge whose formula states: grade placement = $.06x_2 + .10x_3 + .10x_4 + 1.99$ (Klare, 1974, p. 67). Many new formulae were built upon or corrected older ones such as Dale-Chall (1948); some were intended for specialized purposes such as Jacobson (1961, 1965); and others were developed for special grade levels (Spache, 1953).

When considering the general readability formulae, however, five major ones seem to be consistently presented, compared, and correlated in recent literature: Dale-Chall (1948), Harris-Jacobson (Harris & Sipay, 1975), Fry (1977), SMOG (Klare, 1963), and Flesch (1951). This is probably because they are widely used and are suitable for adult

reading matter. They also represent the two major approaches to the calculation of readability. One approach is that of calculating the number of unfamiliar words (Dale-Chall, Harris-Jacobson). The other is calculating the number of syllables per word (Fry, SMOG, Flesch) in addition to sentence length (Tropini & Walmsley, 1981).

Readability of Occupational or Vocational Literature

One of the guidelines presented by Klare (1974) for choosing a readability formula is that the user should choose a formula geared to his or her particular needs. This is an important consideration when attempting to determine the reading difficulty of vocational or occupational literature. Thornton (1981) pointed out that readability procedures have not been developed or validated for vocational and occupational literature. The military has used some readability procedures for examining occupational material for military purposes. Other than that, the reliability of readability formulae has not been examined as they apply specifically to vocational and occupational literature.

Problems arise from the inconsistent difficulty throughout the written matter, the use of technical language that is necessary for the precise content being covered, and the kind of specific reading skill needed to comprehend occupational literature. Thornton (1981)

also questioned the use of a mean GRL when it is applied to occupational literature. He felt that a mean is statistically an inappropriate measure of the readability of occupational literature because of open-ended ranges and skewed or multimodal distributions of reading levels so often found in this kind of literature. For much of the occupational and vocational literature examined, Thornton found the "mean is an inappropriate measure of central tendency" (p. 104).

Choosing a Method to Judge Readability

Klare (1980) suggested a number of methods that might be used to judge the appropriateness of the level of a piece of writing. One method is to guess. Another is asking the judgment of others. A piece of writing can be judged by testing it on a sample of potential readers. The method that has become most popular and most in use recently is the use of the readability formula. Formulae, though not perfect predictors, do a better job than individual judges or groups of judges.

Because readability formulae at best provide only a predictive indication of the readability of a piece of writing (Klare, 1974), the ease with which they can be calculated must be a consideration and probably accounts for the widespread use of one formula over another (Klare, 1974). Though mechanical aids are available for many

formulae, they are not always accessible. The providing of a handy graph which is easy to use, which correlates highly with other more computably difficult formulae and which spans a broad range of reading difficulty, makes Fry's formula very attractive (Fry, 1977b).

Writeability

Writing for a practical purpose is a difficult and an elusive art. Rudolf Flesch, a master of addressing the tricky problem of readability and verbal communication, has offered sound and practical "rules" for the production of readable writing. In his book, The Art of Plain Writing (1946), he presented his formula for good writing, a formula which he indicated gives only a rough estimate for the principle of plain English.

He stated that there are three things that make for simple language: short sentences, few affixes and many personal references. From these three characteristics of simple writing, he devised the following yardstick formula for figuring the difficulty of a written passage. First, multiply the average length of the sentence by .1338. Then, multiply the number of affixes per 100 words by .0645. Add these two figures. Next, take the number of personal references in 100 words and multiply it by .0659. Subtract the result from the sum of the first two numbers. Finally, subtract .75 (Flesch, 1946, p. 58).

The result is a difficulty score, a figure likely to be between 0 and 7. The range of difficulty progresses

from Very Easy (grade 5) which is any number up to 1, to Very Difficult (college graduate) with a rating above 6. According to Flesch (1946) every literate person can read Very Easy English, and three-fourths of the American people can manage Standard Difficulty English which is Level 3 to 4 and represents grades 8 and 9, or that of a high school freshman (p. 136). He pointed out that the difference between Standard Difficulty and Fairly Difficult English is the difference between colloquial and bookish English. In subsequent writing, Flesch (1960, 1974) separated his formula into two parts, one providing a reading ease score and the other providing a human interest score.

To reach an audience at a certain reading level, Flesch felt you must talk the kind of language they will understand without effort, and this usually means that to get your ideas across you must go one step below the reading level of your audience. He was also quick to emphasize that he was referring to reading levels and not intelligence. Working one's way through a book is a word-by-sentence experience and not a question of intelligence to Flesch. If one really understands a book, one must be able to translate everything down to the level of standard prose and explain the ideas in ordinary conversation. To translate prose down to a lower level of difficulty is not easy said Flesch. "In fact, it is the

toughest reading test anybody could devise" (Flesch, 1946, p. 140).

Interdependence of Readability and Plain Writing

Again and again, Rudolf Flesch stressed the interdependence of readability and plain writing as he gave step-by-step instruction in the art of communication (1960, 1974). The message ringing forth is to keep sentences short, keep the vocabulary simple, and fill the written material with personal references. Woven around this central message are many practical ways to accomplish these goals in the actual writing or rewriting of a text. Among these practical suggestions is the mandate to have something to say, to collect data, to think about what you are going to say, to organize the material and then to write on the topic. Be specific, be direct and do not embellish. Use colloquial English, for it makes writing more easily understood. Be flexible and sensible in the use of formal grammatical rules (Flesch, 1974). Before working on a text, the readability formula should be applied to estimate its suitability. After rewriting a text, the formula should be reapplied to judge if the goal for a lower readability level has been reached. Flesch's Formula comes in two parts: a Reading Ease Formula to check the reading difficulty using sentence length and number of syllables as a yardstick; and a Reading Interest

Formula to test the human interest of material via the number of personal references in what has been written (Flesch, 1946, 1960, 1974).

Flesch spoke to the adviseability of editing or rewriting material to suit the reading ability of the intended audience. "If you want to widen your audience and reach readers with less education, you'll have to simplify your style...If you don't carry simplification too far into primer style, your old readers will not only stay with you, but you'll get more of the same kind; and they'll read you faster, enjoy it more, understand better and remember longer" (Flesch, 1974, p. 175).

Flesch intended his simplification theories to apply to all writing: to fiction, magazine articles, non-fiction and textual copy alike. In speaking specifically about young readers, he felt that forcing children into a book that is too difficult caused them both to fall behind and to be miserable. "The poor grading of texts means the difference between real learning and merely being exposed to something unpleasant" (Flesch, 1974, p. 175).

The relationship of readability to the written material has been discussed by Fry (1977a). He said, "Part of the readability problem is poor writing" (p. 219). A reader cannot be blamed for poor comprehension when the material he is reading is ambiguous and confusing. It is

sometimes necessary for a teacher to rewrite in order to provide material that students can read.

Kernal Distance Theory

In the process of rewriting material for greater comprehension, it is necessary to understand why sentences have a certain level of reading ease. Fry (1977a) explained this partly with the Kernal Distance Theory, which deals with the Kernal (subject and verb) of a sentence and Distance (the clause that can be moved around). The theory holds that to write simply, the kernal should not be split and the distance should be put after the kernal rather than before.

SER

In writing didactic prose, a style called SER can be used. This acronym stands for Statement, Example, and Restatement (Fry, 1977a, p. 219). SER can be consciously applied to the writing of paragraphs as well as essays and chapters and can affect both readability and comprehension.

In considering the rewriting of articles to a lower readability level, Fry made seven suggestions:

1. Watch the vocabulary load.
2. Watch the syntax complexity.
3. Style can have an important influence on readability.

4. Know the intended reading audience.

5. Know the subject being written about.

6. Test a sample of rewritten material and revise again.

7. Check the final rewritten material with a readability formula. (Fry, 1977a, p. 220)

The final acid test for all rewritten material must then be applied: do the readers comprehend.

Other Considerations in Rewriting

Readability formulae, said Standal (1978) are of great value in matching the material to the ability of any given child, but formulae sometimes seem to be capricious and arbitrary. They cannot weigh all the factors. For many reasons, some explainable and some not, some young people can read what they shouldn't be able to read. Some can't read what they should. Standal (1978) cited the classic case of the 15 or 16 year old "non-reader" who can read, comprehend and retain the written material in the state's driver's licensing manual. Clark (1981) said, "Ultimately readability depends not on the materials but on the abilities and interests of the students" (p. 675).

Interest and Motivation.--Vocabulary and syntax are very often emphasized in readability formulae. Fry (1979) pointed out that factors other than these affect the

readability of material. Student interest, student motivation, prior knowledge of a specific subject, redundancy, writing style, illustrative material and many other factors affect readability and therefore need to be considered in the rewriting of material. The final test for readable writing is whether it communicates to its intended audience (Fry, 1979). For this reason, it is important that a draft of the rewritten manuscript be tested on a sampling of the intended audience.

Difficult Vocabulary.--One of the dangers in using readability formulae to make decisions concerning rewriting materials is the inhibiting of proper vocabulary through the constraining effect of syllable counting. In rewriting material at a lower readability level, there are ways to overcome the use of three syllable words that push up the formula count but are necessary for precise writing, particularly in a technical or scientific field.

The procedure suggested by Fry (1979) to ease the readability without eliminating necessary and proper vocabulary was:

1. Explain or define a word when it is first used.
2. Repeat a word three times in close proximity.
3. Syllabicate the word each of the first three times it is used.
4. Print a glossary with syllabication and a simple

definition. Definitions are not needed for proper nouns.

In discussing the rewriting of social studies materials to lower reading levels, Cardinelli (1976) suggested that a teacher may deal with too difficult a piece of material either by editing the original or by rewriting the material at a lower readability level. In the rewriting of material, the selection should emerge as an easily read selection that is still factually accurate. Cardinelli (1976) said that rewriting is the more difficult approach but has the distinct advantage of reaching the lowest reading levels.

Imagery.--Cardinelli combined many of the rewriting techniques previously suggested by Flesch (1967) and Fry (1977, 1979). In his directives for rewriting he also suggested using imagery in writing to lower readability levels. Writing, using vocabulary with a higher imagery rating, can make the reading more exciting. Cardinelli cited the Coleman-van der Veur Imagery Rating of 1000 Words (van der Veur, 1975) to show the writer how to make a more interesting vocabulary selection.

Lowering the readability level of a text through editing or rewriting does not necessarily insure that a text is easier to understand (Johnson, 1977). It does, however, indicate that there is an awareness of readability problems and that teachers, administrators and publishers are trying to give the student a chance to

read the text and comprehend the material.

Graphs and Charts

When faced with the job of simple explanation, many writers escape from the written text to symbols, graphs, charts and diagrams. Flesch (1960, 1974) pointed out that one picture is not worth a thousand words. To assume that a visual presentation can explain an idea without words is "pure superstition" (Flesch, 1960, p. 107). He felt that nothing should be illustrated pictorially or graphically without a running text to explain to the reader what it means. Captions are not enough. The reader must be told what the illustration means, how to look at it, and why to look at it. Children must specifically be taught to be able to read charts and graphs and to process diagrams. Otherwise, in their reading they will skip over them because they find them confusing. To learn from visual aids, people need training. "Only the specially educated learn to interpret general factual information from graphs and charts" (Flesch, 1960, p. 108).

In discussing graphs and charts, Flesch (1960) again addressed the responsibility of the writer. His message continues to be one of simplification. He stressed the importance of keeping pictorial statistics simple and explaining all visual aids in words (Flesch, 1960).

Fry (1981) also addressed the subject of graphical

literacy. He, like Flesch, recognized the importance of direct instruction in acquiring graphic literacy. He saw the reading teacher as the natural implementor of this instruction. Fry defined graphic literacy as, "The ability to read and write (draw) graphs" (1981, p. 383), and thus carried graphic comprehension one step further than Flesch, who did not mention the ability to write graphs as a dimension of graphic literacy. Fry pointed out that the ability to read and write graphs should be taught in school. The interdependence of graph and text is acknowledged by both Fry (1981) and Flesch (1960).

Legibility

Another aspect of readability of the text is related to the legibility of the page, and must be addressed in the final copy of the rewritten material. Flesch (1960) gave four basic rules for legibility.

1. Any type size under 10 point makes reading difficult.

2. Material printed in unfamiliar type face is hard to read.

3. Lines with no white space (leading) between them and lines with more than 40 characters are hard to read. The rule is one-and-a-half alphabets per line.

4. It is hard to read headings printed in capitals only.

Page arrangement is important. Thoughtful arrangement makes reading and understanding easier. Some information is better tabulated than buried in running paragraphs. If statistical tables and graphs cannot be provided, there is a middle way to provide statistics through careful editing and lay-out. Flesch (1960) referred to this process as the "garden variety" of editing and revision. He called it the "morning after" editing and felt that it was capable of being done by any ordinary person (p. 121).

Testing Comprehension Through Cloze

Readability formulae have been developed to attempt to predict the difficulty of reading material. On the basis of readability formulae as well as other more informal predictors, attempts are being made to match the instructional materials to the abilities of individual readers. These edited and rewritten instructional materials must then be tested on the intended readers to see if there is an appropriate match between reader and material. Since comprehension is the "acid test" of a correct match between the reader and the intended material, the problem becomes one of finding the most valid and reliable method of testing the comprehension.

One way to test the comprehension of a reading passage is through the use of a multiple-choice test.

Another is to use the traditional completion type test which requires an answer choice based on definition or purpose. A third way to test comprehension is to use a special form of completion called cloze procedure in which every fifth word is omitted mechanically in a continuous passage. To be correct, the answer must be a word filling the slot that exactly matches the deleted word.

Multiple-choice and completion tests are often difficult to use and give inaccurate results. They are writer dependent and require many items that are skillfully written to be accurate. Bormuth (1967) pointed out that the cloze test permits readability research to be executed with more ease and precision than with the traditional multiple-choice or completion type tests. His research found cloze to be highly reliable and valid in judging the comprehension and readability of a passage. Cloze is also easily and objectively constructed. Rankin (as cited by Bormuth, 1967) has done extensive research on cloze tests and has published an analysis and review of this research.

Bormuth (1967) provided a frame of referency by which the score on cloze passages being used to measure the comprehension difficulties of a particular piece of written matter could be interpreted. His research applied to students at all levels except the primary grades.

His controlled studies sought to determine for each of several cloze test scores the score the subject would most likely receive on a multiple-choice test over the same passage. His studies were conducted with fourth and fifth-grade students using passages determined to be grade level 4.5 - 6.5 using the Dale-Chall readability formula. Bormuth (1967) showed the cloze test scores that a student is most likely to get on a multiple-choice test on the same passage. A cloze score of 38 percent is an indication that the passage is understandable enough to be used for instruction. It would indicate that the student could correctly answer 75 percent of the multiple-choice items that might be written over that same passage. A criterion cloze test score corrected for guessing would be 43 percent. This would be a 67 percent corrected multiple-choice test score and would be close to the score obtained on a completion test. Similarly, a cloze score of 50 percent would be comparable to a multiple-choice raw score of 90 percent and a corrected score of 87 percent.

Another study by Bormuth (1968) recommended a criterion level of 44 percent for instructional level and 57 percent for independent reading level. These would predict a 75 percent and 90 percent score respectively on a multiple-choice test on the same passage. Bormuth (1967)

did warn that cloze tests are complex and that predictions for individuals and groups are only possible if a passage is long enough. He used passages of approximately 275 words. If group predictions are needed, the group must be large enough to give an accurate prediction. The experimental group of Bormuth numbered 100.

Bormuth (1967) recommended a length of roughly 275 words deleting every fifth word. Only exact answers were counted as correct. The blanks were exactly equal in length and were treated in every way like words for the typing of spaces and punctuation.

There are shortcomings and limitations in every form of testing. Bormuth's findings (1967), however, were accurate within less than two percentage score points in finding the theoretical relationship between the two kinds of scores: multiple-choice and cloze. Rankin and Culhane (1969) as cited in Peterson, Paradis and Peters (1973) replicated Bormuth's study and obtained similar results when they used exact word scoring. Peterson et al. (1973) extended Bormuth's study to determine if the percentages of his study among intermediate grade level pupils applied to high school, vocational high school, adult-vocational-technical school and university students. The results from this study indicated that the cloze technique was applicable in predicting reading ability and measuring the comprehension of high school students

within the ranges of 38 to 44 percent for instructional level as previously reported by Bormuth (1967, 1968).

Buros (1978) stated that most cloze research indicates that cloze is a reliable and valid measure of reading comprehension. Concurrent validity coefficients of .80 are typical when the same passage is used for both the cloze and the multiple-choice test. Elley (Buros, 1978) recommended that cloze be used to assess comprehension and measure readability. It is simple to construct, eliminates the experimenter variable found in other tests, and can be applied to prose passages.

The College Board states in its Readability Report accompanying the Degrees of Reading Power Test (1981) that the "use of the cloze technique to derive criterion scores is considered desireable because cloze provides a prima facie link between the difficulty of the test items based on that prose" (p. 13). Cloze has been shown to be a good predictor of readability. Studies indicate that the cloze technique can be used with most age groups as a group technique to predict students' abilities to deal with unfamiliar materials.

Summary

The literature supports the concern for the inappropriate matching of reader with reading material. It also supports the need to lower the readability level

of some materials in order to accomplish a closer correspondence between the abilities of the student and the difficulty of the printed word.

An examination of the many available readability formulae indicates that the user may choose the one most suited to his or her particular needs. The user must also be aware that readability formulae are only indices of reading difficulty. Other less calculable and more subjective factors such as interest, background information and motivation must also be considered.

Translating prose down to a lower level of reading difficulty is not an easy task. It can be accomplished by editing or rewriting, although rewriting enables the readability level to be altered to a lower level than editing. Simplification of material may be accomplished through shortening sentences, simplifying words and increasing personal references. It can also be accomplished by using the SER method: Statement, Example, Restatement. The use of graphs and visual aids also need to be addressed in simplifying a text. All editing and rewriting, regardless of the method used, must keep the intended audience in mind.

The literature has established that the cloze technique is a reliable and valid measure of reading comprehension. It is a recommended procedure (using a

deletion of every fifth word in a 275 word passage with only exact completions considered correct) for assessing reading comprehension and measuring readability. It is a technique that can be used to predict a student's ability to deal with unfamiliar material.

In the total procedure of judging readability, editing and rewriting material, and testing for comprehension and readability, one goal must be kept in mind. That goal is to increase the comprehension of the reader.

CHAPTER III

METHODOLOGY

In order to discover the comprehension of the State of New Jersey Driver Manual rewritten at a lower readability level among high school students who are disabled readers as compared with the comprehension of the State of New Jersey Driver Manual in its present form by the same population, cloze was used. Cloze technique tests, based on a passage from Chapter 6 of the State of New Jersey Driver Manual, were designed and administered to a group of high school students who were also disabled readers. One version of the test was based on the passage from the manual in its present form. The other form of the test was based on the same passage rewritten at a lower readability level. In addition, the overall reading comprehension test scores from recently administered standardized reading tests were examined for all students involved in the study. Only those whose scores were 7.0 or below were considered. The research was designed to discover if there was any difference between the comprehension by disabled readers of the State of New Jersey Driver Manual in its present form and the manual

rewritten at a lower readability level.

Population

The subjects for this study were high school students attending three high schools in New Jersey: Cedar Ridge High School in Old Bridge Township, Princeton High School in Princeton and Trenton Central High School in the City of Trenton. Of the students tested, 74 were considered for final analysis because they had a reading comprehension score of 7.0 or below and because they had not previously taken a driver education course or read or studied the passage from the Driver Manual used for the testing procedure.

Community Types

Testing was conducted using students in the public school systems of Old Bridge Township, Princeton and Trenton, New Jersey. Three school systems were used to attain a large enough number of students who had reading comprehension scores of 7.0 or below and who had not yet taken driver education.

Old Bridge

Cedar Ridge High School is located in Middlesex County in the township of Old Bridge. Old Bridge Township is located on the Raritan Bay south of the Amboys and east of New Brunswick. It is a suburban bedroom community that sprawls over forty square miles. Its widespread geography and its rapid population growth in the

last thirty years have created a fragmented community of mushrooming housing developments that lacks a physical and psychological center. The people of Old Bridge and their employment are affected by its proximity to the fringes of the metropolitan New York area. The majority of the working residents commute to New York City.

Old Bridge has a population of 51,506 (1980 Census) that is predominately white and has a mean family income of $12,630 (1970 Census). The people are characterized by education beyond high school, above average income, home ownership, young families and an ambition for upward mobility.

The Old Bridge Township School District includes 13 elementary, two middle and two high schools. Total district enrollment numbers 9,556 (February 1982) with less than 1,000 of this number representing minority groups. Cedar Ridge High School includes grades nine through twelve and is one of the two high schools in the district. The school reflects the widespread geographic span of the community it serves. Of the 1,681 students attending this high school, only one boy walks to school. The rest of the students are bused. Sixty-four percent of the graduating seniors at Cedar Ridge High School go on to institutions of higher learning including two and four year colleges as well as technical schools.

Princeton

Princeton is a suburban community comprised of two smaller entities: Princeton Borough and Princeton Township. It is located in central New Jersey to the northeast of Trenton. Its area is 18.01 square miles. It is an upper middle class to upper class residential area with a personal per capita average income of $7,746 in the Borough and $13,567 in the Township in 1977 (Bureau of Government Research, 1981). Its residents either work locally or commute to the nearby cities: New York, Trenton and Philadelphia. There are many educational institutions in the vicinity, the primary one being Princeton University. The area also boasts many research institutions, the largest one being the Educational Testing Service. With a population of 25,669 (1980 Census), Princeton has the charm of a small town but the sophistication of a city. The intellectual nature of the community makes it particularly attentive to the education of its children.

In addition to many private schools, Princeton has a public school system, the Princeton Regional School District. There are presently three elementary schools for kindergarten through grade five, a middle school which serves grades six through eight, and the high school which serves grades nine through twelve. District enrollment in

September 1981 was 2,686 children. Minority groups made up 8 percent of the school population. Approximately 84 percent of those graduating from the public high school went to institutions of higher education.

Trenton

Trenton is the capital of the State of New Jersey and the only city in Mercer County. It is situated on the Delaware River in the center and on the western side of the state about 35 miles north of Philadelphia. It is a manufacturing and commercial center set in the corridor that connects Washington, D.C. with New York City. In recent years its industrial growth has shown a decline as has its population. The 1980 Census shows a 12.1 percent population decline since the previous census. The 1980 population was 92,124, approximately half of which was white and half black. The median family income in Trenton was $8,726 in 1970 with 12.7 percent of the residents having incomes falling below the poverty level.

Trenton Central High School is the only senior high school in the City of Trenton. Its enrollment, which is drawn from all areas of the city, is predominately black. The school's curriculum includes business, vocational and academic courses. The high school has its own vocational-technical center that occupies an important position in the physical plant and the course offerings. The high school contains 10th, 11th and 12th grades and has an

enrollment of about 3,000 students. Only half of the students who enter Trenton Central High School are graduated. Many of the students leave school to join the armed forces. Others drop out of school to work but eventually attain their high school diploma through other means.

Construction of the Instrument

The study was based upon the rewriting of a segment of the State of New Jersey Driver Manual at a readability level of grade 6 or below. A readability level of grade 6 or below was chosen because of the content of the Driver Manual. After conversations with reading teachers and a learning consultant in a local high school who had experience in lowering the reading level of high school reading material, it was decided that an average reading level of grade 6 would permit the freedom to include words of a precise and technical nature. It would also permit a broader based comprehension of the manual without diluting the subject matter.

Chapter 6, "Driving Rules and Regulations," was the section of the Driver Manual chosen to be rewritten. This chapter dealt with instructional material that was characteristic of the rest of the manual. It contained variations in the readability level, graphics, a number of lists and admonitions as well as textual informative material written in a straightforward prose style. (See Appendix A).

From Chapter 6 of the Driver Manual, a passage was chosen for the cloze test. This passage was found on pages 52 and 53 of the Driver Manual and covered material about bicycles, motorcycles and snowmobiles. It was chosen because it was written in a style to which a readability formula could be applied. Its samples showed a variety of reading levels and thus were representative of the manual in general. The passage chosen also consisted of more than 275 words on a contained subject.

The rewriting of the material was done based on the research of Flesch (1960) and the SER (Statement, Example, Restatement) method proposed by Fry (1977a). Rewriting was accomplished keeping in mind the length of the sentence, the difficulty of the vocabulary and the use of personal references in the text. The rewriting was accomplished with an effort made not to oversimplify the material or lose the basic message of the text. Difficult words that were necessary to include because of the training nature of the manual were broken into syllables, defined and used a number of times in succession. They were also included in the glossary (Fry, 1979). The original material was checked for readability using Fry's Readability Formula (1977b). The rewritten material was also checked for readability using Fry's formula. From the selected passage from Chapter 6, both in its original and its rewritten form, cloze tests were constructed and

administered.

In the rewriting of this chapter of the Driver Manual, attention was given to the graphics. Care was given that the labeling of the visual aids was clear and that the information on them was also explained in the running text. Where necessary, labels on the figures were simplified.

An example of a passage from Chapter 6 of the State of New Jersey Driver Manual both in its original and in its rewritten form follows.

Original Passage

The readability of a passage from page 43 of the Driver Manual, as calculated using the Fry formula (1977b), is grade 8.

> Entering Highways, Parkways and Turnpikes
>
> Highways, parkways and turnpikes are divided roads (usually multi-laned) with traffic flow only in one direction. There are no direct intersections. To help drivers enter a highway, acceleration (or speed up) lanes are used. These are extra lanes to allow time for you to enter the freeway and speed up to the flow of traffic. The driver must yield to traffic on the main road before moving into the proper lane. Keep the following points in mind when entering multi-laned highways.
>
> Watch for, and obey, the posted advisory speed limits (if any) at the entrance ramp.
>
> As you reach the acceleration lane, speed up to the flow of traffic. (see Appendix A, Figure 3)

Rewritten Passage

The readability of the same passage rewritten at a lower readability level is grade 5, as calculated using the Fry formula (1977b).

When You Enter Highways, Parkways and Turnpikes

Highways, parkways and turnpikes are roads that are divided. Most of the time they have many lanes. Traffic moves only in one direction on highways, parkways and turnpikes. There are no direct crossroads on these roads. They have special lanes to enter them or leave them.

The special lane to help you speed up and move onto a highway is called an acceleration (ak sel′ uh rā′ shun) lane. Acceleration means to speed up. The acceleration lanes are extra lanes that give you time to speed up. You can speed up in the acceleration lane and then move into the traffic on the highway. This is called merging (mėrj′ ing). To merg (mėrj) is to get into the traffic moving along on the highway.

You must yield to other drivers when you enter a highway. A driver must yield to the traffic on the main road before moving into the proper lane on the highway. You should only enter the main highway when you know it is safe.

Remember these things when you enter highways with more than one lane.

Look for speed limit signs on the entrance ramps. Obey them.

The roads that take you from a regular street to a

highway are called entrance ramps. There are speed limit signs on some entrance ramps. Look for them. Obey them.

Speed up when you come to the acceleration lane. Speed up until you are going as fast as the traffic on the main road and then move into it. (see Appendix B, p. 91)

Description of the Test

The testing instrument used for this study was a teacher-made cloze test. The test was constructed with two forms. (see Appendix D) One form was a cloze test based on a 370 word passage from Chapter 6 of the State of New Jersey Driver Manual just as it is published. The second form was a cloze test using the same passage from the State of New Jersey Driver Manual but in a rewritten form. Because the rewritten form included definitions, repetitions, restatements and language clarifications, it was longer. The rewritten form was 571 words in length. (see Appendix C) In both tests every fifth word was deleted and only exact responses were considered correct. The passage was free standing and the first and last sentence stood intact. Since the instrument was a teacher-made test, it was not normed or standardized.

The results were tabulated in terms of the number of correct responses. Because each test form had a different number of possible slots to fill, this raw data did not

permit comparison between those tested on the rewritten manual and those tested on the original manual. Therefore, the raw score was then converted to a percentage correct score. The advantage of a percentage correct score was to obtain an objective criterion for deciding whether a reader could benefit from reading the rewritten material. Bormuth (1967) recommended a criterion level of 38 percent for instructional level and 50 percent for an independent reading level when using cloze procedure. Research shows these would predict a 75 percent and 90 percent correct score respectively on a multiple-choice test on the same passage. (Bormuth 1967).

In Buros (1978) it is stated that the general conclusion from most of the cloze research is that it is a reliable and valid measure of reading comprehension. The concurrent validity coefficients using multiple-choice tests as a criterion cluster between .65 and .90. Coefficients of .80 are typical when the same passage is used for both cloze and a multiple-choice test.

For assessing comprehension and measuring readability, Elley (Buros, 1978) recommends that cloze be used. It is simple to construct, eliminates the experimenter variable found in many other tests, and can be applied to prose passages. If it is used with care, it will yield reliable information about the reading ability and the language maturity of the reader as well as the readability

of the written matter.

Administration of the Test

The teacher-made cloze procedure test was administered to a select number of high school students. Those students were selected who had low reading comprehension scores on a recently administered standardized reading test. They were also in a high school grade in which driver education had not yet been offered. Therefore, they had not read the passage in the State of New Jersey Driver Manual before taking the test. Each answer on the test was a response placed in the deletion blank which appeared every fifth word on the test sheet. The examination procedure followed those recommended by Bormuth (1967). The testing was not timed and the students were able to complete the test in one fifty minute class period.

Directions

The directions for the cloze test administered to the students were as follows:

1. This is a cloze test on a passage from Chapter 6 of the State of New Jersey Driver Manual. This section is about bicycles, motorcycles and snowmobiles.

2. You will see that the first sentence is complete. From that point on, every fifth word is left out. Your job is to guess which word is left out and then write that word in the blank.

3. First look over the passage to see what it is about.

4. Then go back to the beginning and fill in the blanks with the word you think belongs there. Some of the words are just little ones like a, and, and the. Some are bigger words like bicycle, snowmobile and registration.

5. If you can't think of any word to go into the blank, skip it and go on. When you have finished the test, go back and take a guess at the words you have skipped.

6. You might think of more than one word to put in some blanks. In this case, pick the one word that you think is best.

7. There is really no right or wrong answer. Just try to have the word that makes sense in the context of the passage.

8. The test is untimed. You may have as long as you need to finish it.

9. You will not get a mark for this test. The reason you are taking it is to help us know how well you understand this passage from the Driver Manual.

Classroom Procedure

The students were tested in a classroom situation with their teacher as well as the examiner present. All of the students in the designated classes were tested. Only the tests of those students who matched the criteria,

however, were tabulated. The tests of those students with reading comprehension scores above 7.0 and those who had already taken a driver education course were not considered.

The two forms of the cloze test were distributed randomly to the classes being tested. Random distribution was achieved by giving every other student the test based on the original version of the passage. Similarly, every other student received the test based on the rewritten version of the passage. The tests were scored by hand.

Analysis of Data

In analyzing the data, only tests of students with a reading score of 7.0 or below who had not taken driver education were considered. The raw scores for the completed cloze tests were tabulated by counting the total number of blanks that had been filled with exact replications of the deleted words. Spelling errors were not counted as incorrect responses as long as it was clear that the word was an exact replication. Variations in tense, number, or verb form were not accepted as correct. The total possible raw score for the passage in its original form was 67. The total possible score for the longer, rewritten passage was 101. Because it was not possible to compare these unequal raw scores, they were converted to percentage correct scores. Percentage correct scores also made it possible to compare

the results with Bormuth's research (1967) which is expressed in percentage correct. On the basis of Bormuth's figures, it was able to be determined if the students were reading the passage at a frustrational, instructional, or independent level of comprehension. It was also possible to judge the number of correct responses that might be anticipated should the comprehension of this passage be tested by a multiple-choice test.

Mean percentage correct scores for each form of the passage were calculated. The difference in the means for the two versions of the cloze test was then determined. On the basis of the data, a *t* score was tabulated to determine if the difference between the two means was significant. If the difference between the means was significant, it indicated that the rewriting of the passage at a lower readability level made a significant difference in increasing the comprehension of the readers of that passage.

CHAPTER IV

RESULTS AND DISCUSSION

The study was designed to find out if a passage rewritten at a lower readability level was easier to read than the original more difficult passage. In order to determine if any significant difference existed in the reading comprehension of students reading the State of New Jersey Driver Manual in its present published form and the manual rewritten at a lower readability level, a cloze test was administered to an experimental and a control group. These groups were matched in reading ability as shown on reading comprehension scores on previously administered standardized reading tests. No student in either group had taken a driver education course. The purpose of the following discussion is to present the findings revealed by the testing and to interpret the data.

Results

Two cloze tests, one based on a passage from Chapter 6 of the State of New Jersey Driver Manual rewritten at a lower readability level and the other based on the original version of the same passage, were given to

two groups of 37 high school students. Because the number of deletions for each test was not equal, the mean reading comprehension scores from these tests were expressed in percentage correct to make comparison possible.

The cloze score, based on exact replacement of words in slots, indicated that the rewritten passage was significantly easier to read than the original passage. The students were able to replace an average of 49 exact words out of a possible 101 for a mean score of 48.97 percent correct on the rewritten passage. On the original version, the students were able to replace an average of 17.5 exact words out of a possible 67 for a mean percentage score of 25.59 correct. These differences in percent correct measurement yielded a t score of 10.15 which is significant at the .001 level of confidence. See Table 1.

The two cloze tests were based on the same passage from the Driver Manual. One test was constructed from this passage in its original form. The other test was constructed from the rewritten passage. The number of words in each passage included an intact sentence at the beginning and end. Headings and titles were not counted for either passage. The original passage contained 370 words. There were 67 deletions to be filled. The rewritten passage was 49 percent longer and contained 551

TABLE 1

SIGNIFICANCE OF THE DIFFERENCE BETWEEN READING COMPREHENSION ON A REWRITTEN VERSION OF A PASSAGE FROM THE STATE OF NEW JERSEY DRIVER MANUAL AND THE SAME PASSAGE IN ITS ORIGINAL PUBLISHED FORM

GROUP	Number of Subjects	Number of Deletions	Mean Raw Score	Mean Percent Correct	SD in Percent
READING COMPREHENSION ON					
Rewritten Passage	37	101	49	48.97	9.62
Original Passage	37	67	17.5	25.59	10.17
Difference				23.38[a]	

[a]A *t* score of 10.15 is significant at the .001 level of confidence

words with 101 deletions to be filled.

The cloze tests were given untimed to both groups of students. The amount of time required to complete the test was noted for a random sampling of students in both groups. The time that was required for students to complete the test on each version of the passage did not differ in proportion to its length. There were 17 students in the random sampling of those whose time was noted when taking the rewritten test. The mean time for these 17 students to complete the rewritten cloze passage was 22.8 minutes. In the random sampling of 22 students whose time was noted when taking the cloze test based on the original passage, the mean time for completing the deletions was 25.6 minutes. The mean time was longer for the students taking the cloze test on the shorter, more difficult original passage than for those tested on the longer but less difficult rewritten passage. See Table 2.

All of the high school students tested on the two versions of the passage from the Driver Manual had a reading comprehension score of grade 7.0 or below. The mean reading comprehension score of those reading the rewritten passage was 5.0. The mean reading comprehension score of those reading the original version was 5.3. Because the students tested were drawn from three different high schools in New Jersey and because each school used

TABLE 2

COMPARATIVE DESCRIPTION OF THE TWO PASSAGES USED FOR THE CLOZE TEST AND MEAN TIME REQUIRED FOR COMPLETION

PASSAGE	Number of Words In Passage[a]	Number of Deletions	Mean Time Required for Completion
Rewritten Passage	551	101	22.8 min.[b]
Original Passage	370	67	25.6 min.[c]

[a] omitting headings and titles

[b] based on random sampling of 17 students

[c] based on random sampling of 22 students

a different standardized reading test, the mean reading comprehension scores were based on scores from three different standardized reading tests.

In rewriting the passage from the Driver Manual, the readability was lowered two grades, from grade 8 to grade 6. After the procedure of counting syllables and sentences in three 100 word selections within the passage was followed, the readability of each passage was determined using the Readability Graph (Fry, 1977b).

In comparing the readability of each passage with the mean reading comprehension scores from the cloze tests expressed in percentage correct, the data showed that the passage with the lower readability level produced higher reading comprehension scores. The group of students reading the passage rewritten at grade level 6 had an average reading comprehension score of 5.0 and produced a mean percentage score of 48.97 percent correct. Students tested by cloze on the original version of the manual, which had a readability of grade 8, had an average reading comprehension score of 5.3 and produced a mean percentage score of 25.59 percent correct. The passage with the lower readability level produced higher reading comprehension scores. See Tables 3 and 4.

Discussion

Comparing the time needed to complete the two versions

TABLE 3

COMPARATIVE MEAN READING COMPREHENSION SCORES OF STUDENTS USED IN CLOZE TESTING IN RELATION TO MEAN CLOZE TEST SCORES EXPRESSED IN PERCENT CORRECT AND THE READABILITY OF THE PASSAGES

PASSAGE	Mean Reading Comprehension Score (RGL) of Students	Mean Percentage Score on Cloze Test	Readability of Passage[b] (RGL)
Rewritten Passage	5.0[a]	48.97	6
Original Passage	5.3[a]	25.59	8

[a]Based on Reading Comprehension Scores on several Standardized Reading Tests.

[b]Calculated from Graph for Estimating Readability (Fry, 1977b).

TABLE 4

COMPARISON OF READABILITY CALCULATIONS FOR THE ORIGINAL PASSAGE USED FOR THE CLOZE TEST WITH THE READABILITY CALCULATIONS FOR THE REWRITTEN PASSAGE USED FOR THE CLOZE TEST

PASSAGE	SYLLABLES	SENTENCES	GRADE LEVEL
Original Passage			
1st Hundred Words	139	8.5	
2nd Hundred Words	169	7.8	
3rd Hundred Words	159	9.1	
Average	155	8.4	
READABILITY			8th
Rewritten Passage			
1st Hundred Words	128	8.8	
2nd Hundred Words	140	9.3	
3rd Hundred Words	138	6	
Average	135	8	
READABILITY			6th

of the passage from the Driver Manual was not an objective at the outset of the study. During the testing of the first group of students, however, it was observed that those taking the test based on the easier, rewritten passage were completing it at the same time or in less time than the shorter test on the original passage. To verify this observation, the time required by the remaining students to complete the tests was noted. It was found that despite its longer length, the mean time required to complete the rewritten and easier passage was less than that required to complete the original, more difficult passage. It was also observed that those students taking the cloze test based on the easier, rewritten and 49 percent longer passage were having a less difficult time. There was less evidence of sighing and struggling and there were more remarks that the exercise was easy. These findings support the ideas of Flesch (1974) that if the written material is matched to suit the reading ability of the intended audience, that audience will read it faster and enjoy it more.

The cloze procedure proved to be a convenient way to find out how well instructional material could be comprehended. The tests used were easily constructed and scored according to the research of Bormuth (1967). According to Bormuth, a cloze test score of 43 percent correct, which includes an adjustment for guessing, is required to reach an instructional criterion

reading level. The mean level of 48.97 percent correct for the rewritten passage is above this level. The mean of 25.59 percent correct on the original passage falls below this criterion and would indicate a frustration reading level.

Another observation on the use of cloze to test reading comprehension was the willingness of the students to cooperate in the taking of the cloze test. Two of the classroom teachers present during the testing commented that often poor readers react in a negative manner when asked to take a standardized reading test. Cloze has some of the characteristics of a game built into it that make it seem different from a test. There is guessing involved. It is untimed. The students are told that there is no right or wrong answer and that there may be a variety of answers that could appropriately fill a certain blank. This game-like nature of the test combined with the popular subject matter, the Driver Manual, seemed to stimulate the interest of the students being examined and encourage their cooperation.

In the scoring of the cloze tests, it was apparent that counting only exact replications in the blanks, as instructed by Bormuth (1967), made the scoring easier. It eliminated the need to make judgments as to the correctness of a particular answer. There was only one answer

that was acceptable.

Thornton (1981), raised a question concerning the readability of occupational literature expressed as an average. His research showed that the mean reading level can be a deceptive statistic with occupational literature. This is because the mean does not reflect the wide range of reading difficulty often found within a piece of occupational literature. The readability of the test passage was grade 6 for the rewritten version and grade 8 for the original version. This readability represented an average calculated according to the Fry formula (1977b). The passage used for the cloze test was chosen from Chapter 6 of the Driver Manual because it closely resembled a piece of textbook literature. This made the readability formula more applicable than to a passage that contained a list or a series of admonitions, both of which are common in the manual. There was some variation in the readability levels of the different segments within the chosen passage. This variation reflected the Driver Manual in general. In the rewritten version, the difficulty of a portion of the passage was addressed by the use of definitions, the syllabication of difficult words and the frequent repetition of new or difficult vocabulary. This was in keeping with the instruction of Klare (1980).

Predicting readability is not easy to do well, but it is relatively simple compared to producing readable writing. Klare (1980) stated that "research suggests that changes made in words and sentences may make writing more readable" (p. iv). He suggested that Simple, Active, Affirmative, Declarative or SAAD sentences are most readable. Making their proportion greater in written material makes the writing more readable. This approach toward writing along with Flesch's ideas about Human Interest Level and Reading Ease Level (1960) and the Statement, Example, Restatement or SER approach (Fry, 1977a) to rewriting were applied in the rewriting of Chapter 6 of the Driver Manual. Many of the changes made are measureable by the Fry formula (1977b). Others, such as the increased number of personal references and the reorganization of material are not, but still constitute factors in making the writing more readable and more easily comprehended. In the total rewriting effort, attention was focused on the informational nature of the material. Extreme care was given to keeping the information in the Driver Manual the same despite changes in the textual writing and style.

Klare (1980) stated that readability formulae are only indices of the difficulty of a piece of writing. He felt that when it is well done, testing a piece of writing on a sample of potential readers is the most accurate

method of arriving at a specific level of difficulty. Few writers are able to do this, however, because it is a very laborious process. This testing of a piece of writing to arrive at a level of difficulty is what was accomplished in the study.

Limitations

One limitation of this study is that the reading comprehension scores for the students tested came from three different standardized reading tests. This was unavoidable since each high school in which the study was conducted used a different standardized reading test. Since the reading comprehension scores are not an integral part of the cloze testing of the passages, this is not a serious limitation.

Another limitation is the length of the study. It would have been a more powerful study had it been longer. The results with this small study are quite significant, however, and are indicative of the results that might well be realized with a longer study.

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary

This study was undertaken to determine if reading comprehension as measured by cloze was significantly increased when the readability of a passage was lowered. A passage from Chapter 6 of the State of New Jersey Driver Manual was rewritten at a lower readability level. Both the original, more difficult passage and the rewritten, less difficult passage were then constructed as a cloze test. These tests were administered randomly to high school students whose reading comprehension, as determined by a standardized reading test, was deficient and who had not yet taken a driver education course. Both cloze tests contained passages of at least 275 words and were constructed with the first and last sentences remaining intact. Following the first sentence, every fifth word was deleted. In the scoring of the test, only exact replications of the deleted words were accepted as correct. The test results were compared using percentage correct to determine if the reading comprehension was significantly greater on the test with a lower readability

level.

Reading comprehension, as determined by cloze, was significantly greater on the passage with a lower readability level. The rewritten, less difficult but longer passage was also read faster and with greater ease. These findings are in agreement with other studies.

Conclusions

The results of this study indicate that readability works. They indicate that rewriting a piece of written material can make it easier to read and better matched to the abilities and skills of its intended audience.

Calculating the reading difficulty of a written passage using a reliable formula gives an indication of the reading difficulty of that passage. Rewriting to increase reading comprehension, however, embodies factors other than those measured by a readability formula. These factors include the personalization of the writing, coherence and organization of ideas, the defining of unfamiliar or difficult vocabulary and the use of a clear and simplified style. Additional aspects of readability not able to be measured by a formula are motivation and interests of the intended audience.

The rewriting of training and vocational material such as the Driver Manual carries with it a special responsibility. The writer must be sensitive to the intended purpose of the writing and be certain that the

content of the message remains the same even though the material is rewritten and the reading difficulty level is lowered.

This study also demonstrates the construction and application of a cloze technique test using Bormuth's (1967) criteria to evaluate the comprehension of a given written passage by a group of readers. The results of the cloze test expressed in percentage correct permit the comparison of comprehension of one passage with that of another. In this study it permitted the comparison of comprehension of a passage from the Driver Manual in its original form with the same passage rewritten in an easier, more readable form.

The implications of the study support the current concern that material written to instruct or direct the general public be written in language and at a reading level for all to comprehend. The evidence also suggests that if the State of New Jersey Driver Manual were rewritten at a lower reading level, it would be read and comprehended by a greater number of high school students and by more of the public in general.

Suggestions for Further Research

Some possibilities for further research suggested by this study are:

1. The development of a readability formula designed

specifically for occupational or training material of a non-military nature. Current formulae cannot be applied to lists or a series of steps in abbreviated sentence form. The average reading grade level that they produce is not meaningful for vocational literature that embodies broad variations and extremes in the reading levels throughout the text. The development of a readability formula designed specifically for occupational literature would permit the readability of that literature to be more accurately assessed.

2. A study of the reading comprehension of the State of New Jersey Driver Manual by new drivers who are experiencing more than the average number of driving violations to determine if they are able to read and adequately comprehend the Driver Manual.

3. A study of the readability of the New Jersey Division of Motor Vehicles Driver Examination, which is based on the information found in the Driver Manual. Passage of this examination with a score of 80 percent is necessary for the validation of the driving permit.

4. The rewriting of the State of New Jersey Driver Manual in its entirety at a lower readability level would appear desireable.

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APPENDIX A

CHAPTER 6 AS PRINTED IN THE STATE OF
NEW JERSEY DRIVER MANUAL

PART 3
RULES
OF THE ROAD

CHAPTER 6—DRIVING RULES AND REGULATIONS

SPEED CONTROL

Speeding is a common cause of fatal accidents. You must always be aware of your speed when driving. Speed affects almost everything else that can happen to you in the car. When driving it is a good idea to keep up with the flow of traffic at any legal speed. Keep enough distance from traffic around you so that you can stop safely when necessary.

New Jersey law sets top speed limits for any given road, street, highway or freeway.

NEW JERSEY SPEED LIMITS (unless otherwise posted)

- 25 mph in a school zone
- 25 mph in any business or residence district.
- 55 mph on certain state highways as posted and all interstates.
- 50 mph at all other locations.

You must never drive faster than is safe for conditions no matter what the posted speed limit. Judge your speed control by type of road, weather, and traffic. Drivers should slow down enough to see clearly and stop quickly in traffic. *It is important to slow down:*

- On narrow or winding roads.
- At intersections or railroads crossings.
- On hills.
- At sharp or blind curves.
- Where there are pedestrians or driving hazards.
- When the road is wet or slippery.

If you cannot keep up with normal traffic because of car problems, pull off the road.

Driving Too Slowly

While it is important to slow down when necessary, try to keep up with normal traffic flow. Many accidents are caused by drivers who drive too slowly and back up traffic. When road surfaces and traffic are normal New Jersey law prohibits you from blocking traffic by slow driving.

Figure 1

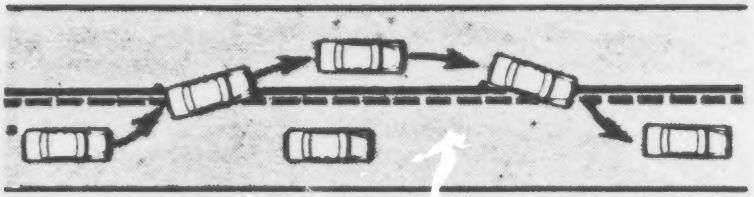
DRIVING RULES AND REGULATIONS 6

PASSI G

You should know the proper lane for normal driving and how to change lanes safely. The rules for passing depend on the type of road.

Stay to the right of the center lines. Passing is only safe when you can see far enough ahead to be sure there is nc oncoming traffic. Watch for lane markings. If there are both solid and dashed center lines, you may only pass when the dashed line is on your side. You must complete the pass before reaching another solid line on your side. *Do not* pass when there is a solid line on your side. This is not only illegal but very unsafe.

PASS ONLY WHEN SAFE



In most cases you pass on the left. You may pass on the right (on roads with more than one lane) when the driver ahead is making a left turn and there is room to pass. *Do not* pass on the right shoulder of the road. This is against the law. Some important rules about passing are listed in the chart.

DO NOT PASS

- On a hill or a curve, or at any time you cannot see far enough ahead.
- At a street crossing or intersection.
- At a railroad crossing.
- On narrow bridges, or in underpasses, or tunnels.
- Where a sign tells you not to pass.
- When a vehicle in front of you has stopped to let a pedestrian cross.

YIELDING RIGHT-OF-WAY

Although there are laws which govern the right-of-way, you should always be prepared to yield. There are some basic rules which always apply. Yield to police cars, fire engines and ambulances, when they are giving warning signs (sirens, flashing lights). Yield to pedestrians.

Controlled Intersections

An intersection is where two or more roads cross or merge at angles. It is controlled if there are traffic lights or signs in any direction. Obey the signals. At a controlled intersection, there are conditions when you *must* yield.

Figure 2

- At a 4-way stop, yield to the driver on the right if you both get there at the same time.
- Yield to the other driver if he is already in the intersection.
- If you are entering an intersection marked with a yield sign, slow down. Yield to traffic on the main road. Stop if you need to.
- At a traffic light when you want to turn left, yield to oncoming traffic.

Uncontrolled Intersections

When two or more roads join and there are no traffic signals, be extra careful. Keep a watch ahead on both sides of the road for crossroads. Most of the time there will be a warning sign ahead. As you near a crossroad that is not controlled, be ready to stop if a car is coming from the right or left. A driver coming from a private road or driveway *must yield* to all traffic in the main road. (But you can never be sure he will.) As a general rule the car on the left should yield to the car on the right.

Blind Intersections

Buildings, parked cars, or bushes may obstruct a driver's line of sight. In the country, trees or crops may hide cross traffic. Slow down to allow time to check traffic. Stop if you have to.

Entering Highways, Parkways and Turnpikes

Highways, parkways and turnpikes are divided roads (usually multi-laned) with traffic flow only in one direction. There are no direct intersections. To help drivers enter a highway, acceleration (or speed up) lanes are used. These are extra lanes used to allow time for you to enter the freeway and speed up to the flow of traffic. The driver *must yield* to traffic on the main road before moving into the proper lane. Keep the following points in mind when entering multi-laned highways.

- Watch for, and obey, the posted advisory speed limits (if any) at the entrance ramp.
- As you reach the acceleration lane, speed up to the flow of traffic.
- Before you reach the end of the acceleration lane look for an opening in traffic on the main road.
- Yield to traffic and enter the right hand lane when safe.

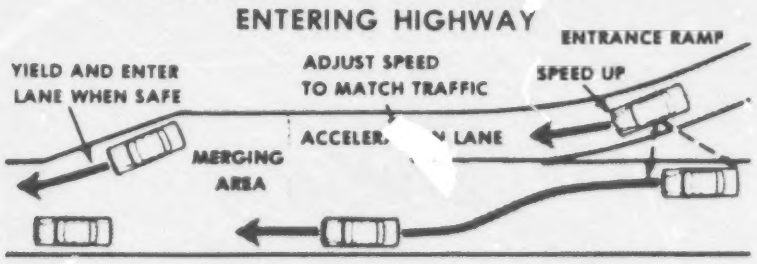


Figure 3

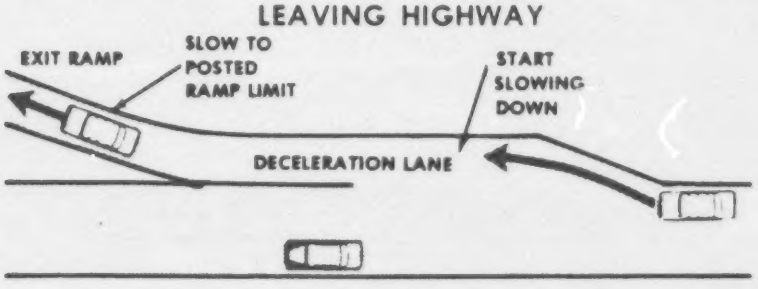
DRIVING RULES AND REGULATIONS 6

Leaving Highways, Parkways and Turnpikes

In most cases the exits on highways are on the right. Watch for turnoff signs. When you near the exit there is usually an extra lane to the right. This is called a deceleration (or slow down) lane. Keep the following points in mind when leaving highways

- When you begin to enter the deceleration lane for an exit, start slowing down.
- When you near the exit ramp, slow down to the posted advisory speed limit.
- Always be sure you are going slow enough to keep control of your car when there are curves or circles in the exit.

In cases where the exit is on the left, watch for signs which show the proper lane for turn-off.



Interchanges (Cloverleafs)

Divided highways are built for express traffic. To smooth traffic flow, there are usually no traffic lights or direct crossroads. To get on or off such an expressway you must often make a cloverleaf turn. Watch for entrance and exit signs. Drive slowly in the circle. Signs may be posted to show what speed is safe on the curve.

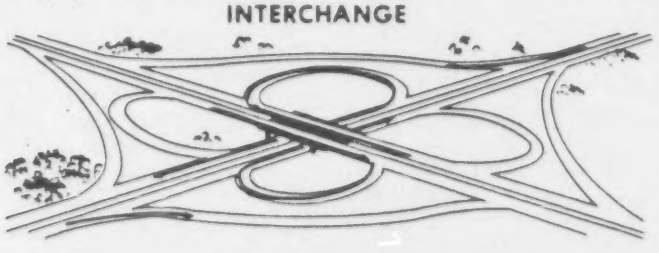


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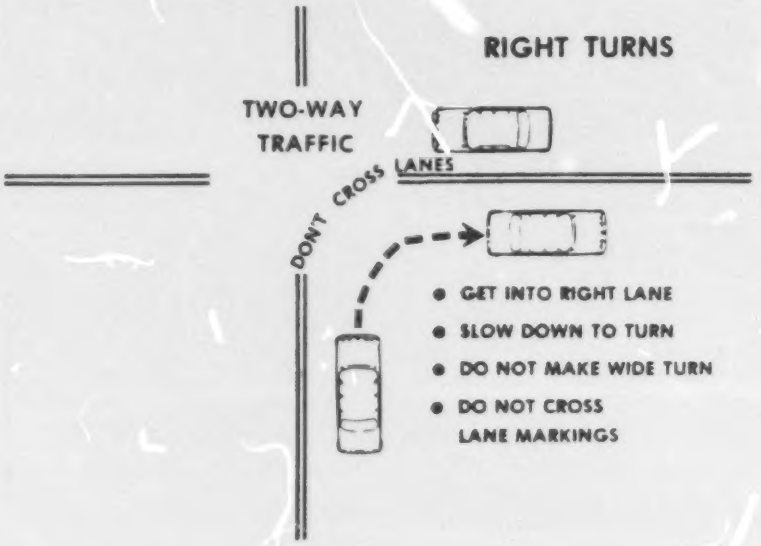
Figure 4

TURNING REGULATIONS

The proper signals for stops and turns are covered in Chapter 5. Always use your turn signals at least 100 feet before making any turn. Be sure your signals are canceled after completing a turn.

Right Turns—Drive up to the turn as far to the right as possible. Keep close either to the right curb or parked cars at the curb. Be sure that you do not swing into the wrong lane while making your turn.



Left Turns—Two Vehicles—If you meet another driver at an intersection and both of you signal left turns, be extra careful. When safe, each driver should turn to the left of the center of the intersection.

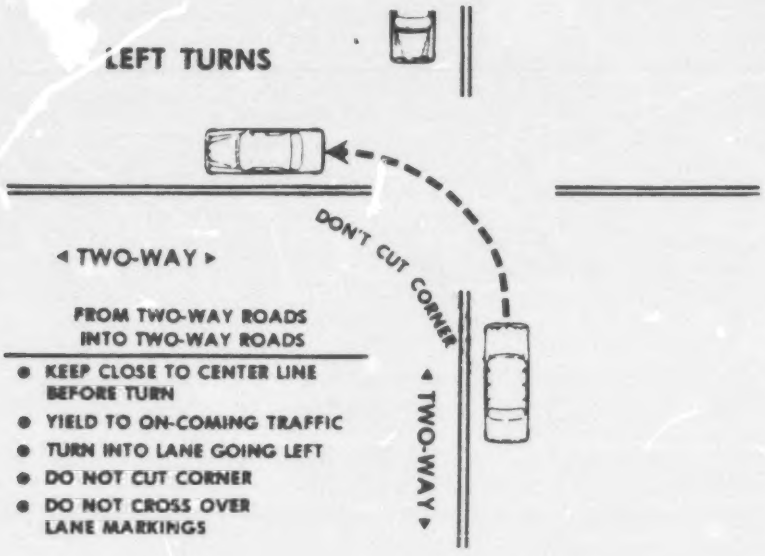
Left Turn from One-Way Road into Two-Way Road—As you near the turn, get into the left lane. Make the turn to the left of the center of the intersection. After turning, keep to the right of the lane markings.

Left Turn from a One-Way Road into One-Way Road—Approach the turn in the left lane. Turn into the left lane of the road you are entering.

Figure 5

DRIVING RULES AND REGULATIONS 6

Left Turn from Two-Way Road into Two Way Road—Approach the turn as close as possible to the center line of the road. In turning, do not cross lane markings. Keep to the right of the lane of the road you are entering.


LEFT TURNS
DON'T CUT CORNER
◂ TWO-WAY ▸
FROM TWO-WAY ROADS
INTO TWO-WAY ROADS
• KEEP CLOSE TO CENTER LINE BEFORE TURN
• YIELD TO ON-COMING TRAFFIC
• TURN INTO LANE GOING LEFT
• DO NOT CUT CORNER
• DO NOT CROSS OVER LANE MARKINGS
◂ TWO-WAY ▸

Left Turns—Between Intersections—Between intersections, solid lines show when not to pass. These lines may be crossed with care when entering or leaving driveways in business or residential areas.

Left Turn from Two-Way Road into Four-Lane Highway—Approach the turn as close to the center line of the road as possible. Make the turn before reaching the center of the intersection. Be careful not to cross lane markings. Turn into the left lane of the road going in your direction. This is the passing lane of the four-lane highway. When traffic permits, move to the right, out of the passing lane.

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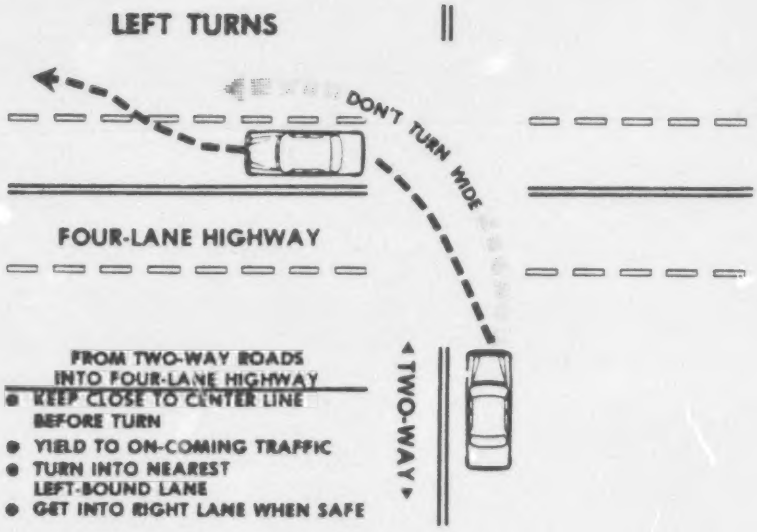
Figure 6



Circle Intersections

In a typical circle, there are four uncontrolled intersections. It is in these areas that most accidents in circles occur. The driver approaching the circle intersection shall yield to vehicles already in the circle. When two vehicles enter a circle intersection at the same time, the vehicle on the left shall yield to the vehicle on the right. Be extra careful when going into or leaving traffic circles. Watch lane markings closely.

STOPPING REGULATIONS

Signs, signals and traffic rules tell you when you have to stop. The following section highlights some of the important stopping regulations.

Figure 7

DRIVING RULES AND REGULATIONS 6

WHEN YOU MUST STOP

- At an intersection with a stop sign.
- Where there is a red traffic light. (You may turn right on red where permitted after a full stop.)
- Where there is a flashing red light.
- When a traffic officer orders you to stop.
- When there is a "yield" sign and traffic on the through road is too close.
- When a school bus is picking up or letting off children.
- When coming from an alley, private driveway, or building.
- At a bridge span which is about to open for boat traffic.
- When a blind pedestrian raises a white cane.
- At a railroad crossing with a train coming.

Do not try to beat a traffic light change. Even if the light is changing to green, be careful. There may be other cars coming through or still in the intersection. Most accidents at traffic signals happen in the first few seconds after the light has changed. When a yellow light follows a green light, get ready to stop. If the light changes while you are already in the intersection, go through with caution.

Stop at Grade Crossings

Stop at railroad crossings when there are flashing lights, bells, or flag signals. Lowered gates may also warn you that a train is coming. When railroad crossings do not have warning signals, you should be extra careful. Buses, trucks carrying explosives or flammable chemicals, and construction vehicles must always stop 15 to 50 feet before the tracks at all times.

Stop for School Buses

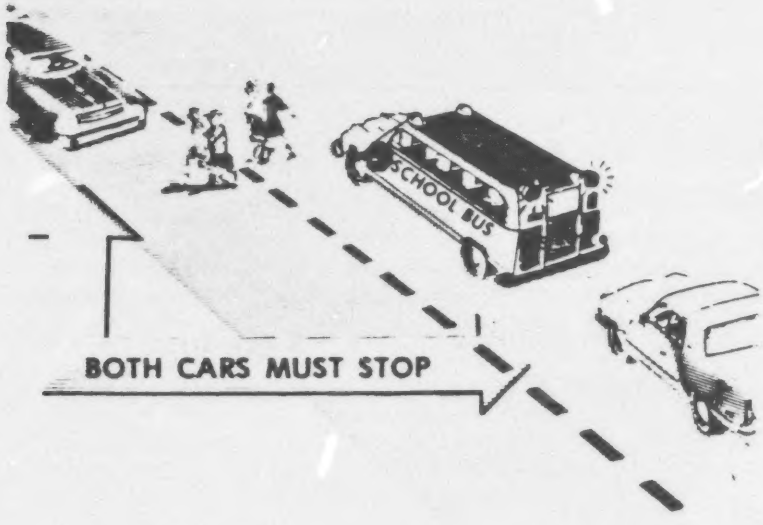
If you are approaching or overtaking a school bus and it shows a flashing red light, signaling a stop, you must:

- Stop at least 10 feet away. This is required by law if you are on a two-lane road. It also applies if you are on a multi-lane highway where lanes are only separated by lines.
- On a dual highway, if you are on the other side of a safety island or raised median, you must slow down to 10 miles per hour.
- When a school bus has stopped directly in front of a school to pick up or let off children, you may pass from either direction at a speed of no more than 10 mph.

School buses are equipped with amber and red flashing lights. The amber flashing lights go on 300 feet before the bus stops, followed by the red

Figure 8

flashing lights when it has stopped. But you cannot always depend on these signals. They may not be working. Obey the regulations. Watch for children. After a stop, go on with care when all school bus signals are turned off.



Emergency Vehicles

Police cars and fire trucks and ambulances have sirens and red lights. You must yield to emergency vehicles when you hear a siren or see a flashing red light. Drive over to the extreme right of a street or highway and stop. Wait for the vehicle to pass. You should always keep at least 500 feet behind a signaling emergency vehicle. Do not park within 300 feet of a fire department vehicle in service. Do not cross over a fire hose unless an official allows you to do so.

USE OF LIGHTS

Headlights should be used between one-half hour after sunset and one-half hour before sunrise. They also should be used in bad weather. Being able to see clearly while driving is very important. Always make sure your

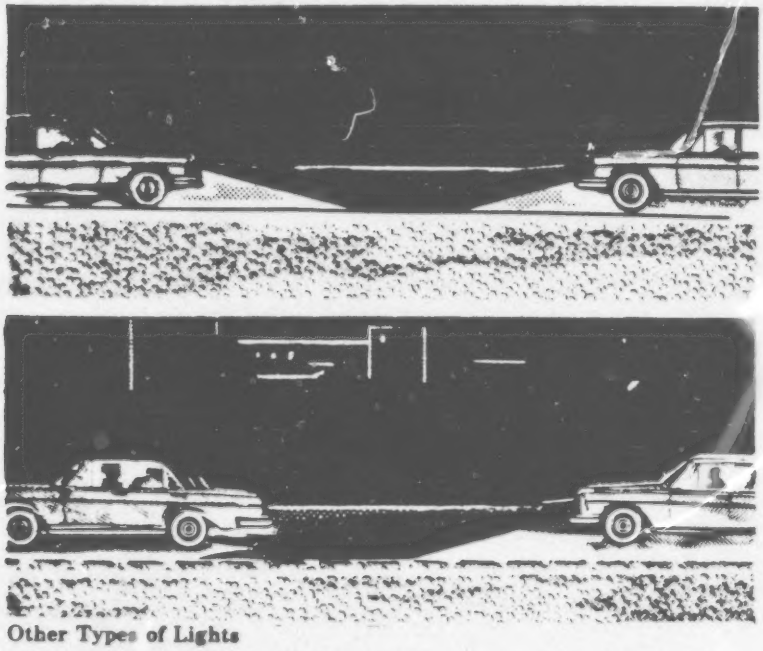
Figure 9

lights are in good working order and clean. Headlights help other drivers to see you. Proper use of headlights is vital to safe driving. Parking lights cannot legally be used alone at times when headlights are required.

Bright and Dims

Headlights have two sets of beams. They are controlled by a switch button. The bright beam is for open country driving where there is no traffic in sight. The bright beam helps you see farther ahead.

The dim lights are focused down on the road. They are for city driving and driving in traffic on highways. When you are behind another car or see one coming toward you, dim your lights. The bright beam will shine or reflect into the other driver's eyes.



Other Types of Lights

Use parking lights only when you leave your car for a short time in a permitted zone. Parking lights cannot be used alone when driving. They are helpful to show other vehicles where your car is. Parking lights *are required* on vehicles outside of business or residential districts.

Your tail lights should turn on at the same time as your headlights and parking lights. They become brighter when you apply the brakes to show you

Figure 10

are slowing or stopping. During the day, without headlights, the tail lights also turn on as you apply the brakes.

Overhead lights inside the car should only be used briefly (to check a map, for instance). When dashboard lights are too bright they may be distracting. Keep them dim but still light enough to read the dials.

Spot lights should only be used in emergencies. This also applies to emergency warning lights. Spot lights may *not* be used for driving purposes.

PARKING REGULATIONS

Before you leave your vehicle after parking, check for traffic behind you. Many persons have been killed by getting out into traffic. Whenever possible, get out on the curb side.

- Look at all parking signs before parking on city streets. Check for parking time limits.
- Never park more than 3 inches from the curb. Parking further away from the curb is illegal. It can cause traffic problems.

In general, do not park where you will block traffic. It is illegal for you to stop or park at any of the following places (except to avoid an accident or unless directed by an officer). Improperly parked vehicles can cause accidents.

PARKING

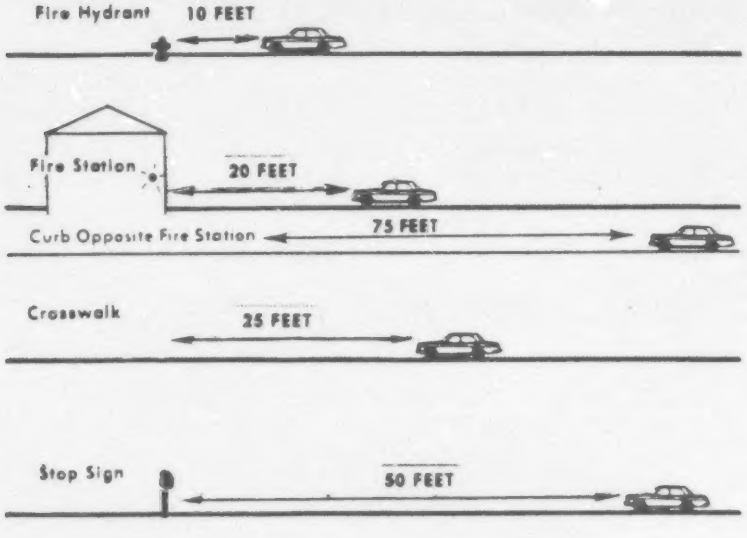


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Figure 11

DRIVING RULES AND REGULATIONS 6

DO NOT PARK

- On an interstate highway. (In case of mechanical trouble or other emergency, stop on the right shoulder. Make sure your car is clear of moving traffic.)
- On a sidewalk.
- In a bus stop zone.
- In front of a driveway.
- Within an intersection.
- On a pedestrian crosswalk.
- Within 10 feet of a fire hydrant.
- Within 25 feet of a crosswalk at an intersection.
- Within 50 feet of a stop sign.
- Within 20 feet of the driveway entrance to any fire station. Within 75 feet of the curb section opposite a fire station.
- On any bridge, elevated roadway, or in any tunnel.
- Alongside another vehicle parked at the curb (double parking).
- Any other area where parking is prohibited by municipal ordinance.

SPECIAL VEHICLE REGULATIONS

Bicycle Regulations

When you ride a bicycle you must obey the same traffic laws as motor vehicle drivers. Signal all turns and stops, using the standard hand signals. Keep to the right on a road or use a bicycle path. Stay off sidewalks where not permitted. Do not ride more than two abreast with other bicycles. Never hold on to other vehicles or carry a passenger without an attached seat. For your own safety, make sure you have control at all times.

Bicycles are required to have brakes in good working order. They must have a bell or other signal (but not a siren or whistle) which can be heard 100 feet away. When used after dark, bicycles must have a headlight and a rear red light. The lights should be visible from at least 500 feet away.

More information on bicycles is available from the Division of Motor Vehicles.

Motorized Bicyle (MOPED) Regulations

MOPED operators must obey all New Jersey Motor Vehicle Laws and regulations. This means the laws covering motor vehicles, bicycles, and MOPEDS.

- Any person who is at least 17 years old and holds a valid driver license or a valid motorcycle license may operate a MOPED.

Figure 12

• Any person 15 years old or older who does not hold a valid license must obtain a MOPED license in order to operate a motorized bicycle.

More information on laws covering MOPEDS is contained in the "Motorized Bicycle Operator's Handbook" available at any Motor Vehicle Agency.

Motorcycle Regulations

Motorcyclists must obey all traffic laws. It is important that you signal turns and stops. If the motorcycle does not have direction indicators, use the standard hand signals. Always keep within a traffic lane. Do not straddle a lane or ride between lanes of traffic or between traffic and parked cars. Motorcycles are not permitted to ride more than two abreast in any one traffic lane. Passing regulations are the same as those for passenger cars.

Snowmobiles

Snowmobiles operated on public roads, lands or waters must be registered with the State. Proof of liability insurance is needed for registration. (See Chapter 2.) You must be at least 14 years old to operate a snowmobile in public areas. Registration numbers must be displayed on the snowmobile at all times. A certificate of registration must be shown, upon request by any police officer.

For your protection, the law states that snowmobiles shall not be operated on or alongside main streets or highways. Registered snowmobiles are permitted in these areas only when:

- Crossing a public highway, when safe, in the shortest possible route.
- It is necessary to operate alongside a highway for a short distance to get to a snowmobile area.

More information on laws covering snowmobiles is contained in the "Snowmobile Safety Handbook." It may be obtained from the New Jersey Division of Motor Vehicles.

Figure 13

APPENDIX B

REWRITTEN CHAPTER 6 FROM THE STATE OF
NEW JERSEY DRIVER MANUAL AND GLOSSARY

PART 3
RULES
OF THE ROAD

CHAPTER 6 Driving Rules and Regulations

WATCHING YOUR SPEED

Speed can affect almost everything that happens to you in your car. You must always know how fast you are driving. Driving too fast is the cause of many accidents in which someone is killed.

Keep up with the rest of the traffic when it is moving along at a legal speed. Keep a distance from the traffic around you. Then you can stop safely if you have to.

New Jersey laws set the top speed limits that you may go on any road, street, highway or freeway.

NEW JERSEY SPEED LIMITS (unless a sign on the road tells you something else)

* 25 miles per hour when you are near a school
* 25 miles per hour where there are stores or homes
* 55 miles per hour on state highways where a sign tells you this
* 55 miles per hour on all interstate roads
* 50 miles per hour everywhere else

You must never drive faster than it is safe to go. Sometimes a sign tells you the speed limit, but it is not safe to go that fast. Then you must drive more slowly than the speed limit. The kind of road, the weather and the traffic help you decide how fast to go. You should be able

to see clearly and stop quickly when you drive. If you can't see clearly, you should slow down. If you don't think you can stop quickly, you should slow down. It is important to slow down at these places.

* On small roads
* On roads that curve
* Where roads come together and cross
* Where a railroad crosses the road
* On hills
* At sharp curves or curves where you can't see ahead
* Where people cross the road
* Where there is any danger
* When the road is wet or slippery

Sometimes you have car problems and you can't keep up with moving traffic. Then you should pull off the road.

Speed is very important when you are driving.

Driving Too Slowly

Many accidents are caused by a driver going too slowly. Sometimes you must slow down, but most of the time you will drive to keep up with traffic. When the roads are in good shape and when traffic is moving, you must not drive too slowly. Slow driving will block traffic. New Jersey law will not let you block traffic with slow driving. Driving too slowly can cause accidents.

PASSING

It is important to know how to pass another car. You should know the lane to drive in for regular driving. To pass a car you have to change lanes. You should know how to change lanes safely. There are rules to tell you how to pass another car. The rules for passing depend on the kind of road you are driving on.

When you drive, stay on the right side of the center line. Pass only when you can see ahead. You should be sure there is no traffic coming toward you. Traffic coming toward you is called oncoming traffic. Passing is safe only if there is no oncoming traffic.

Look at the lines painted on the road. They mark the lanes. They also tell you about passing. There are both solid center lines and dashed center lines. A dashed line on your side of the road tells you that you may pass. A solid line on your side says, "Do not pass." You must finish your pass before you reach a solid line on your side.

Do not pass when there is a solid line on your side. This is not legal. It is illegal (i lē'gul) to pass when there is a solid line on your side.

See the diagram in Appendix A, Figure 2. The heading should read: PASS ONLY WHEN IT IS SAFE. There are no other changes.

Most of the time you pass on the left. Sometimes you may pass on the right. You may pass on the right when a

road has more than one lane. You may pass on the right when the driver ahead of you is making a left turn. Be sure there is enough room to pass on the right. The side of the highway is called the shoulder of the road. The shoulder of the road is there for an emergency. The shoulder of the road is not meant for travel. Do not pass on the right shoulder of the road. It is against the law to pass on the right shoulder of the road.

Here are some important rules about passing.

DO NOT PASS

* On a hill or a curve.
* Any time you cannot see far enough ahead.
* At a place when two streets cross each other.
* At a place where a railroad crosses a road.
* On a narrow bridge.
* On a road that passes under another road or under railroad tracks.
* In a tunnel (tun'l).
* Where a sign tells you not to pass.
* When a car in front of you has stopped to let a person cross the street.

You should know how to pass another car.

YIELDING THE RIGHT-OF-WAY

To yield (yēld) means to allow another person or car to go before you do. There are laws which tell you who can

go first, but you should always be ready to yield (yēld). There are some simple rules that tell you to always yield. Always yield to police cars, fire engines and ambulances (am'byu luns es) when they flash their lights or sound their sirens (sī'runs). Yield to people who are walking across the street.

Controlled Intersections

An intersection (in'tur sek'shun) is where two or more roads cross or come together. It is controlled (kun trōld') if there are traffic lights or signs in any direction. A controlled intersection (in'ter sek'shun) is where two or more roads come together and there is a traffic light or street sign there. The traffic light or sign tells you what to do. You must obey the sign or signal.

At a controlled intersection, there are times when you must yield (yēld) and let another car go first. These are the times when you must yield.

* At a 4-way stop. This is where there is a stop sign for each car at an intersection. If two cars get to a 4-way stop at the same time, the car on the left must yield to the car on the right.

* You must yield to another car if it is already in the intersection.

* Some intersections are marked with a yield sign. This means you must slow down. Look for traffic on the main road. Yield to traffic on the main road. Stop if you

need to.

* You are at a traffic light and you want to turn left. You must yield to traffic coming toward you.

Uncontrolled Intersections

Some roads come together and there are no signs or signals where they cross. These are called uncontrolled (un'kun trōld') intersections. Be extra careful when roads cross and there are no signs or signals. Be careful at uncontrolled intersections.

Look on both sides of the road for crossroads when you drive. Keep looking ahead. A warning sign will tell you that there is a crossroad ahead. Be ready to stop at a crossroad that does not have a sign or signal if you see a car coming from the right or the left.

A driver coming from a private road or driveway must yield to all traffic on the main road. But you must be careful when you see a driver coming from a private driveway or private road. You cannot be sure he will stop. You should be ready to stop in case he forgets to stop.

There is a general rule about yielding. It is almost always true. As a general rule, the car on the left should yield to the car on the right.

Blind Intersections

There are times when you come to a crossroad and you cannot see what is coming. This is called a blind

intersection. Buildings, parked cars or trucks, trees or bushes may keep you from seeing. In the country, trees or tall plants may hide a car that is coming. Slow down if you can't see. Give yourself enough time to check what is coming. Stop if you have to.

When You Enter Highways, Parkways and Turnpikes

Highways, parkways and turnpikes are roads that are divided. Most of the time they have many lanes. Traffic moves only in one direction on highways, parkways and turnpikes. There are no direct crossroads on these roads. They have special lanes to enter them or leave them.

The special lane to help you speed up and move onto a highway is called an acceleration (ak sel′uh rā′shun) lane. Acceleration means speed up. The acceleration lanes are extra lanes that give you time to speed up. You can speed up in the acceleration lane and then move into the traffic on the highway. This is called merging (mėrj′ing). To merge (mėrj) is to get into the traffic moving along on the highway.

You must yield to other drivers when you enter a highway. A driver must yield to the traffic on the main road before moving into the proper lane on the highway. You should only enter the main highway when you know it is safe.

Remember these things when you enter highways with more than one lane.

* Look for speed limit signs on the entrance ramps. Obey them.

* The roads that take you from a regular street to a highway are called entrance ramps (en'truns ramps). There are speed limit signs on some entrance ramps. Look for them. Obey them.

* Speed up when you come to the acceleration lane. Speed up on the acceleration lane. Speed up until you are going as fast as the traffic on the main road and then move into it.

* Before you reach the end of the acceleration lane, look for a space in the traffic on the main road. You should move your car into this space.

* Yield to traffic already on the highway when you enter a highway.

* Enter a highway in the right hand lane.

* Enter the highway only if it is safe.

See the diagram in Appendix A, Figure 3. The heading should read: ENTERING A HIGHWAY. Change the caption "Adjust Speed to Match Traffic" to read "Speed Up Until You Are Going Same Speed As Traffic."

When You Leave Highways, Parkways and Turnpikes

Most of the time the exits on highways are on the right. Look for the signs to turn off. When you come near to the exit you will usually see an extra lane to the

right. This is called a deceleration (dē sel′uh rā′shun) lane. Deceleration (dē sel′uh rā′shun) means to slow down. You should slow down in the deceleration lane.

Remember these things when you are getting ready to leave a highway.

* Start to slow down when you get into a deceleration lane.

* Look for the speed limit signs and obey them.

The road leaving a highway is called an exit ramp (ek′sit) ramp. There are speed limit signs on exit ramps. Slow down and obey the speed limit signs on exit ramps.

Go slowly on the curves and circles on the exit ramps. Be in control of your car. This means you are sure that you can make your car do what you want it to do.

Most of the time the exits on a highway are on the right. But sometimes the exit is on the left. Look at the signs. They tell you which lane to use to turn-off.

See the diagram in Appendix A, Figure 4 (top). The heading should read: LEAVING A HIGHWAY. Change the caption "Slow to Posted Ramp Limit" to read "Slow Down to Speed On Speed Limit Sign."

Interchanges (Cloverleafs)

Divided highways are built for fast traffic. To help cars move fast and easily, there are usually not any traffic signs or crossroads. To help your car get on or off a divided highway, you often must use a cloverleaf

(klō′vur lēf) turn. A cloverleaf turn was built to help cars go from one road to another without stopping. It is called a cloverleaf turn because it looks like a big four-leafed clover. A cloverleaf turn is also called an interchange (in′tur chānj). A cloverleaf or interchange turn helps you get off or onto an expressway easily. You have to look carefully. There are signs that tell you to enter or leave a cloverleaf turn. You must drive slowly in the circle. Look for the speed limit signs. They will tell you what is the safe speed on the curve. The following picture shows you what a cloverleaf looks like.

See the diagram in Appendix A, Figure 4 (bottom). The heading should read: INTERCHANGE. There are no changes.

RULES FOR TURNING

The signals you should use for stops and turns are written for you in Chapter 5. Always use your turn signal at least 100 feet before you make any turn. Be sure you turn off your signals after you make your turn.

Right Turns - Drive up to the turn as close to the right side of the road as you can. Keep close to the right curb or to the cars parked at the right curb. Be sure that you do not swing your car into the wrong lane when you make your turn. Look at the picture below.

See the diagram in Appendix A, Figure 5. The heading

should read: HOW TO MAKE RIGHT TURNS. There are no other changes.

Left Turns - Two Vehicles - Sometimes you meet another driver at an intersection and both of you signal for left turns. Then you must be extra careful. Do not go until it is safe. Each driver should turn to the left of the center of the intersection.

Left Turn from One-Way Road into Two-Way Road - As you get near to this kind of a turn, get into the left lane. Make your turn to the left of the center of the intersection. After you turn, keep to the right of the lane markings.

Left Turn from a One-Way Road into a One-Way Road - As you get near to this kind of turn, get into the left lane. Turn into the left lane of the one-way road you are entering.

Left Turn from a Two-Way Road into a Two-Way Road - As you get near to this kind of turn, keep close to the center line of the road. Do not cross the lane markings when you turn. Do not cut corners. Keep to the right of the road you are entering. Look for oncoming traffic as you turn. You must yield to oncoming traffic. Look at the diagram below to see how this kind of turn is made.

See the diagram in Appendix A, Figure 6. The heading should read: HOW TO MAKE LEFT TURNS
From Two-Way Roads Into Two-Way Roads.
There are no other changes.

Left Turns Between Intersections - You must be careful when you make left turns between intersections. Sometimes you will see a solid line on the road. The solid lines on the road show you when you may not pass another car. You are allowed to cross these lines, however, when you make a left turn between intersections. Solid lines on the road may be crossed when you enter or leave driveways into or from an area where there are stores or houses. You should make a left turn between intersections very carefully.

Left Turn from a Two-Way Road into a Four-Lane Highway - As you get near to this kind of a turn, stay close to the center line of the road. Make your turn before you reach the center of the intersection. Do not turn wide. Be careful not to cross the lane markings. Yield to traffic coming toward you. Turn into the left lane of the road going in your direction. This lane is the lane you use to pass on a four-lane highway. Move into the right lane when it is safe. Move out of the passing lane. Look at the diagram below. This diagram shows you how this kind of turn is made.

See the diagram in Appendix A, Figure 7. The heading should read: HOW TO MAKE LEFT TURNS
From Two-Way Roads Into Four-Lane Highways.
There are no other changes.

Intersections at Traffic Circles

Be careful when you go into or leave a traffic

circle (sèr'kul). There are usually four uncontrolled intersections in most traffic circles. Most accidents on a traffic circle happen at the uncontrolled intersections.

When you enter a circle, you must yield to drivers already in the traffic circle. This means that you let them go first. When two drivers enter a traffic circle intersection at the same time, the driver on the left yields to the driver on the right. The left driver lets the right driver go first. Traffic circles are tricky. Look carefully at the lane markings. These are the lines painted on the road. Lane markings will help you at circle intersections. Drive carefully when you go into a traffic circle. Drive carefully when you leave a traffic circle.

RULES ABOUT STOPPING

Signs, signals and traffic rules tell you when you have to stop. Here are some important rules about when you must stop:

WHEN YOU MUST STOP

* At an intersection with a stop sign.

* Where there is a red traffic light.

At many corners you may turn right at a red traffic light. A sign will say No Turn On Red if you may not

turn right on a red light. If there is no sign, you may turn right on a red light. First, come to a full stop. Look and see if it is safe to turn. Then make your right turn.

* Where there is a flashing red light.

A flashing red light means you must stop. After you stop, look and see if it is safe to go. You may go when it is safe.

* When a policeman tells you to stop.

* When there is a yield sign and it is not safe to go.

* When a school bus is picking up or letting off children.

* When you come from an alley, private driveway, or building. Stop before you enter the main road.

* At a bridge that is open or is going to open for a boat to go through.

* When a blind person holds up a white cane. This means the person wants to cross the street.

* At a railroad crossing when a train is coming.

Be careful at traffic lights. Most accidents happen at traffic lights right after the light has changed. Many times you will come to a light that is changing. Do not hurry to get through the light before it changes. Do not try to beat a traffic light that is changing. It is better to stop. Even when a light is changing to green, you still

must be careful. There may be cars hurrying through. There may be cars still in the intersection. When a yellow light comes after a green light, get ready to stop. If you are in an intersection and the light changes, go through but be careful. Remember that most accidents happen at traffic lights just after the light has changed.

Stop at Railroad Crossings

When you come to a railroad crossing be ready to stop. You must stop at railroad crossings when there are flashing lights, ringing bells or flag signals. Stop when the gates are down. Gates that are down warn you that a train may be coming. Sometimes railroad crossings do not have warning signals. When there are no warning signals, you have to be extra careful.

Buses, trucks carrying things that will explode or chemicals that will burn, and construction trucks must always stop 15 to 50 feet before a railroad crossing.

Be ready to stop at a railroad crossing.

Stop for School Buses

If you are driving up to a school bus and it has flashing red lights, this tells you that it is stopping. When a school bus flashes its red lights you must do these things. You must:

* Stop at least 10 feet away when you are on a two lane road. Stop at least 10 feet away when you are on a many-laned highway and the lanes are separated only by lines. This is the law.

* Slow down to 10 miles per hour when you are on a dual highway and you are on the other side of a raised median or safety island from the school bus with its flashing lights.

A dual highway is a highway that has traffic going in two directions. A safety island or a raised strip of concrete in the middle separates traffic going in different directions. The raised concrete strip or safety island is called a median.

* Pass very slowly from either direction at a speed of no more than 10 miles per hour when a school bus has stopped right in front of a school to pick up children or let off children.

School buses have yellow and red flashing lights. Yellow flashing lights are a warning. Yellow flashing lights tell you the bus will stop soon. Yellow flashing lights tell you that the school bus will stop in 300 feet. Red flashing lights tell you that the bus has already stopped.

You must always be careful when you see a school bus. You cannot be sure that the flashing lights are working. When a school bus stops, children may walk onto the road. You must look carefully. Look out for children. Obey the rules about school buses. When the bus signals are turned off, you may drive on carefully.

See the diagram in Appendix A, Figure 9. The heading should read: STOP FOR SCHOOL BUS ON TWO-LANED ROAD. Change the caption "Both Cars Must Stop" to read "Cars In Both Directions Must Stop At Least 10 Feet Away."

Emergency Vehicles

Emergency (i mer′jun sē) vehicles are cars or vehicles that are used to help people in trouble. Police cars, fire trucks and ambulances are emergency vehicles. Emergency vehicles have sirens (sī′runs) and red lights. The sirens blow and the red lights flash when they are in a hurry. You must yield to an emergency vehicle when you hear a siren. You must yield to an emergency vehicle when you see a flashing red light.

When you see a flashing red light or hear a siren, pull far over to the right of the road. Then you must stop. You must wait for the emergency vehicle to pass. Sometimes you will find that you are driving behind an emergency vehicle. When it has passed, you may go. You should always keep at least 500 feet behind an emergency vehicle when you see a flashing light or hear a siren.

A fire truck is an emergency vehicle. Do not park within 300 feet of a fire truck that is being used. Do not ride across a fire hose on the road unless a fireman or a policeman tells you that you may. You must drive carefully when you see or hear any emergency vehicle.

HOW TO USE YOUR LIGHTS

It is important to see clearly when you drive. Headlights will help you to see clearly. You should turn your headlights on one-half hour after the sun goes down. Keep your headlights on until one-half hour before the sun comes up. Use your headlights in bad weather. Make sure your headlights work well. Make sure your headlights are clean. Headlights help you to see. Headlights help other drivers to see you. Headlights help you drive safely.

Parking lights may not be used alone when you are driving. It is not legal to use parking lights alone when you should have your headlights on.

Brights and Dims

Headlights have two sets of beams, brights and dims. You can make your headlights brighter or dimmer with a switch button.

You use the bright beam in the open country. Use the bright beam when you cannot see other cars. The bright beam helps you see far ahead.

Dim beams shine down on the road. They will not shine or reflect in the eyes of other drivers. Dim your lights when you are behind another car. Dim your lights when you see a car coming toward you. Use dim beams in the city and when you are driving in traffic on highways.

You should know how to use your dim beams and your bright beams when you drive.

See the diagram in Appendix A, Figure 10. The heading should read: WHEN TO DIM YOUR LIGHTS. The caption under the top picture should read "When A Car Comes Toward You." The caption under the lower picture should read "When You Are Behind Another Car."

Other Kinds of Lights

Parking lights help to show other vehicles where your car is. Use your parking lights when you park for a short time. You must turn on your parking lights when you park on a dark road where there are no stores or houses nearby. Parking lights may not be used alone when you are driving. Your parking lights help to show others where your car is parked.

Your tail lights should turn on at the same time as your headlights and parking lights. Tail lights get brighter when you step on the brakes. This shows others that you are slowing or stopping. Tail lights turn on when you step on the brakes. They turn on during the day or at night when you step on the brakes. They turn on with or without the headlights. Tail lights go on whenever you press on the brakes.

There are lights inside your car. Overhead lights inside the car should only be used for a short time. You can use them for something like checking a map. Do not keep overhead lights on for a long time. There are lights on your dashboard (dash' bôrd'). Keep your dashboard lights

dim but still light enough to read the dials. When dashboard lights are very bright they can make it hard to drive.

There are lights on cars for emergencies (i mėr′jun sēs). Spot lights are for emergencies. Use spot lights for emergencies. You may not use spot lights for your driving lights. Emergency warning lights are to show others you are having trouble. Use them only for emergencies. Spot lights and emergency warning lights are only to be used for emergencies.

PARKING RULES

You must be careful when you get out of your parked car. Many people have been killed getting out of their car into traffic. There are things you can do to be safe. Look for traffic behind you before you get out of your car. Get out of your car on the curb side. Be sure to look before you get out of your parked car.

Look at all parking signs before you park on city streets. The signs will tell you when you may park. They will tell you how long you may park.

It is not legal to park more than 6 inches from the curb. Parking farther away from the curb can cause traffic problems. Do not park more than 6 inches from the curb.

In general, you should not park where you will block traffic.

* You may not park closer than 10 feet from a fire plug.

* You may not park closer than 20 feet from a fire station.

* You may not park closer than 75 feet from a curb across the street from a fire station. This will give trucks and fire engines room to get in and out of the fire station.

* You may not park closer than 25 feet from a crosswalk.

* You may not park closer than 50 feet from a stop sign.

The picture below shows you the places where you may not stop or park. The only time you may stop or park at the following places is to avoid an accident or when a police officer tells you to do so. A car parked in the wrong place can cause an accident.

See the diagram in Appendix A, Figure 11. The heading should read: WHERE YOU CANNOT PARK. There are no other changes.

DO NOT PARK

* On an interstate highway. An interstate highway is a highway that goes from one state to another. If you have car trouble or if there is an emergency, stop on the right shoulder of the road. Be sure your car is not in the way of moving traffic.

* On a sidewalk.

* At a bus stop.

* In front of a driveway.

* Within an intersection.

* On a crosswalk where people walk across the road.

* Within 10 feet of a fire plug.

* Within 25 feet of a crosswalk at an intersection.

* Within 50 feet of a stop sign.

* Within 20 feet of the entrance to any fire station.

* Within 75 feet of the curb opposite a fire station.

* On any bridge, in any tunnel, or on an elevated road.

* Beside another vehicle parked at the curb. (This is called double parking)

* At any other place where parking is not allowed by the law.

SPECIAL VEHICLE RULES

Rules about Bicycles

When you ride your bicycle you must obey the same traffic laws as a car driver. Show with a signal that you are going to turn or stop. Use hand signals for turning and stopping. You will find the hand signals on page 34 of this manual. Ride your bicycle on the right side of the road or use a bicycle path. Sometimes you are not allowed to ride on the sidewalk. Then you should stay off

the sidewalk. More than two bicycles should not ride alongside each other. Do not hold on to another vehicle when you are riding a bicycle. Do not carry an extra person unless you have an attached seat. Be sure you are in control of your bicycle at all times. When you ride a bicycle, obey the rules and be safe.

The brakes on your bicycle should work well. You should have a bell or signal that others can hear 100 feet away. You should not use a siren or whistle on your bicycle.

At night, when it is dark, you should have a headlight on the front of your bicycle. You should also have a red light on the back of your bicycle. Other people should be able to see the lights on your bicycle 500 feet away.

You can get more information about bicycles from the Division of Motor Vehicles.

Rules about Motorized Bicycles (MOPEDS)

MOPED drivers must obey all New Jersey Motor Vehicle Laws and Rules. This means the laws for motor vehicles, bicycles, and MOPEDS.

If you are 17 years old and hold a valid driver license or a valid motorcycle license, you may drive a MOPED.

If you are 15 years old or older and do not have a valid driver license, you must get a MOPED license to

drive a moped.

There is a book about MOPEDS called "Motorized Bicycle Operator's Handbook." You can get this book from any Motor Vehicle Agency.

Rules about Motorcycles

People who drive motorcycles must obey all traffic laws. You must signal your turns and stops. If your motorcycle does not have direction signals, then use hand signals. You will find the correct hand signals on page 34.

Drive your motorcycle within a traffic lane. Do not ride along the center lane of a road. Do not ride between lanes of traffic or between traffic and parked cars. No more than two motorcycles should ride beside each other in any one traffic lane. The rules for passing on a motorcycle are the same as for cars.

Rules about Snowmobiles

You must be at least 14 years old to drive a snowmobile in public areas.

To drive a snowmobile on public roads, land or waters, you must register it with the State of New Jersey. You need to prove that you have liability insurance (lī′uh bil′uh tē in shur′uns) to register your snowmobile. Liability insurance means that you can pay for the cost of injury and property damage you may cause in an accident. Chapter 2 tells you more about liability

insurance. Put your registration (rej′uh strā′shun) number on your snowmobile where others can see it. When you register your snowmobile you will get a registration paper. This is called a registration certificate (sur tif′uh kit). You must show your registration certificate if a policeman asks for it.

The state law says that you may not drive a snowmobile alongside a main road or highway. This is to protect you. You may take your registered snowmobile near or beside a main street or highway when crossing the highway is the shortest way. You may only do this if it is safe to go. You may ride alongside a main road for a short distance to get to a snowmobile area. You are allowed to do this.

There is a book called "Snowmobile Safety Handbook." It has more information on snowmobile laws in it. You can get it from the New Jersey Division of Motor Vehicles.

GLOSSARY
(In order of appearance)

1. legal (lē′gul) allowed by the law.
2. oncoming traffic (on′kum′ing traf′ik) cars coming toward you.
3. dashed line - a broken line painted on the road.
4. illegal (i lē′gul) against the law.
5. shoulder of the road - the side of a highway used for emergencies but not meant for travel.
6. tunnel (tun′l) an underground passage.
7. yield (yēld) to let someone or something go before you.
8. ambulance (am′byu luns) car or truck used to carry sick or hurt people.
9. sirens (sī′runs) whistles that make a loud noise.
10. intersection (in′tur sek′shun) a place where one road crosses another road.
11. controlled (kun trōld′) having a sign or signal.
12. uncontrolled (un′kun trōld′) having no sign or signal.
13. crossroad (krôs′rōd′) a road that goes across another road.
14. blind intersection - a crossroad where you cannot see what is coming.
15. acceleration lane (ak sel′uh rā′shun lān) an extra driving lane on the side of a high speed highway. Drivers speed up in this lane before they merge with

traffic in the regular lanes.

16. merge (mėrj) traffic from two separate places coming together and making one lane.
17. entrance ramps (en′truns ramps) roads that take you from a regular street to a highway.
18. deceleration lane (dē sel′uh rā′shun lān) an extra driving lane on the side of a high speed highway. Drivers slow down in this lane before they leave the highway.
19. exit ramps (ek′sit ramps) roads that take you from a highway to a regular street.
20. cloverleaf (klō′vur lēf′) curving ramps that form the shape of a four-leaf clover. Lets cars move from one highway to another without crossing in front of other cars.
21. interchange (in′tur chānj′) a place where a highway connects with another main road.
22. vehicles (vē′uh kuls) anything that carries people or things. Cars and trucks are motor vehicles.
23. circle intersection (sėr′kul in′tur sek′shun) a place where a road enters or leaves a traffic circle.
24. lane markings (lān mär′kings) lines painted on the road to show the driver the different lanes.
25. construction (kun struk′shun) the act of putting together a road or building.

26. median (mē′dē un) a raised concrete strip that divides a highway.

27. emergency (i mėr′jun sē) a sudden need for action or help.

28. dashboard (dash′bôrd′) a panel with instruments in front of the driver in a car.

29. crosswalk (krôs′wôk′) a place where people walk across a road.

30. liability insurance (lī′uh bil′uh tē in shůr′uns) an arrangement that a certain amount of money will be paid in case of injury or property damage.

31. registration (rej′uh strā′shun) a legal paper proving that something has been listed in the record book.

32. certificate (sur tif′uh kit) an official printed paper that says that something is true or has been done.

APPENDIX C

ORIGINAL AND REWRITTEN PASSAGE USED FOR CLOZE TEST FROM CHAPTER 6 OF THE STATE OF NEW JERSEY DRIVER MANUAL

Passage in Rewritten Form

SPECIAL VEHICLE RULES

Rules About Bicycles

When you ride your bicycle you must obey the same traffic laws as a car driver. Show with a signal that you are going to turn or stop. Use hand signals for turning and stopping. You will find the hand signals on page 34 of this book. Ride your bicycle on the right side of the road or use a bicycle path. Sometimes you are not allowed to ride on the sidewalk. Then you should stay off the sidewalk. More than two bicycles should not ride alongside each other. Do not hold on to another vehicle when you are riding a bicycle. Do not carry an extra person unless you have an attached seat. Be sure you are in control of your bicycle at all times. When you ride a bicycle, obey the rules and be safe.

The brakes on your bicycle should work well. You should have a bell or signal that others can hear 100 feet away. You should not use a siren or whistle on your bicycle.

At night, when it is dark, you should have a headlight on the front of your bicycle. You should also have a red light on the back of your bicycle. Other people should be able to see the lights on your bicycle 500 feet away.

You can get more information about bicycles from the

Division of Motor Vehicles.

Rules About Motorcycles

People who drive motorcycles must obey all traffic laws. You must signal your turns and stops. If your motorcycle does not have direction signals, then use hand signals. You will find the correct hand signals on page 34.

Drive your motorcycle within a traffic lane. Do not ride along the center of a road. Do not ride between lanes of traffic or between traffic and parked cars. No more than two motorcycles should ride beside each other in any one traffic lane. The rules for passing on a motorcycle are the same as for cars.

Rules About Snowmobiles

You must be at least 14 years old to drive a snowmobile in public areas.

To drive a snowmobile on public roads, land or waters, you must register it with the State of New Jersey. You need to prove that you have liability insurance (li uh bil uh te in shur uns) to register your snowmobile. Liability insurance means that you can pay for the cost of injury and property damage you may cause in an accident. Chapter 2 tells you more about liability insurance. Put your registration (rej uh stra shun) number on your snowmobile where others can see it. When you register your snowmobile you will get a registration

paper. This is called a registration certificate (sur tif uh kit). You must show your registration certificate if a policeman asks for it.

The state law says that you may not drive a snowmobile alongside a main road or highway. This is to protect you. You may take your registered snowmobile near or beside a main street or highway when crossing the highway is the shortest way. You may only do this if it is safe to go. You may have to ride alongside a main road for a short distance to get to a snowmobile area. You are allowed to do this.

There is a book called "Snowmobile Safety Handbook." It has more information on snowmobile laws in it. You can get it from the New Jersey Division of Motor Vehicles.

(State of New Jersey Driver Manual,
pp. 52, 53: rewritten form)

Passage in Original Form

SPECIAL VEHICLE REGULATIONS

Bicycle Regulations

When you ride a bicycle you must obey the same traffic laws as motor vehicle drivers. Signal all turns and stops, using the standard hand signals. Keep to the right on a road or use a bicycle path. Stay off sidewalks where not permitted. Do not ride more than two abreast with other bicycles. Never hold on to other vehicles or carry a passenger without an attached seat. For your own safety, make sure you have control at all times.

Bicycles are required to have brakes in good working order. They must have a bell or other signal (but not a siren or whistle) which can be heard 100 feet away. When used after dark, bicycles must have a headlight and a rear red light. The lights should be visible from at least 500 feet away.

More information on bicycles is available from the Division of Motor Vehicles.

Motorcycle Regulations

Motorcyclists must obey all traffic laws. It is important that you signal turns and stops. If the motorcycle does not have direction indicators, use the standard hand signals. Always keep within a traffic lane. Do not straddle a lane or ride between lanes of traffic or between traffic and parked cars. Motorcycles are

not permitted to ride more than two abreast in any one traffic lane. Passing regulations are the same as those for passenger cars.

Snowmobiles

Snowmobiles operated on public roads, lands or waters must be registered with the State. Proof of liability insurance is needed for registration. (See Chapter 2). You must be at least 14 years old to operate a snowmobile in public areas. Registration numbers must be displayed on the snowmobile at all times. A certificate of registration must be shown, upon request by any police officer.

For your protection, the law states that snowmobiles shall not be operated on or alongside main streets or highways. Registered snowmobiles are permitted in these areas only when:

* Crossing a public highway, when safe, is the shortest possible route.

* It is necessary to operate alongside a highway for a short distance to get to a snowmobile area.

More information on laws covering snowmobiles is contained in the "Snowmobile Safety Handbook." It may be obtained from the New Jersey Division of Motor Vehicles.

(State of New Jersey Driver Manual, pp. 52, 53)

APPENDIX D

CLOZE TESTS USED FOR TESTING COMPREHENSION ON ORIGINAL AND REWRITTEN PASSAGE FROM THE STATE OF NEW JERSEY DRIVER MANUAL

CLOZE READINGS from the DRIVER MANUAL of
the State of New Jersey
Chapter 6

Student's Name: _____

Grade: _____

Date: _____

School: _____

Check One: Male: _____ Female: _____

Have you ever taken Driver Education? _____

CLOZE
FORM A

SPECIAL VEHICLE REGULATIONS

Bicycle Regulations

When you ride a bicycle you must obey the same traffic laws as motor vehicle drivers. Signal all turns and _____, using the standard hand _____. Keep to the right _____ a road or use _____ bicycle path. Stay off _____ where not permitted. Do _____ ride more than two _____ with other bicycles. Never _____ on to other vehicles _____ carry a passenger without _____ attached seat. For your _____ safety, make sure you _____ control at all times.

_____ are required to have _____ in good working order. _____ must have a bell _____ other signal (but not _____ siren or whistle) which _____ be heard 100 feet _____. When used after dark, _____ must have a headlight _____ a rear red light. _____ lights should be visible _____ at least 500 feet _____.

More information on bicycles _____ available from the Division _____ Motor Vehicles.

Motorcycle Regulations

Motorcyclists must _____ all traffic laws. It _____ important that you signal _____ and stops. If the _____ does not have direction _____, use the standard hand _____.

Always keep within a _____ lane. Do not straddle _____ lane or ride between _____ of traffic or between _____ and parked cars. Motorcycles _____ not permitted to ride _____ than two abreast in _____ one traffic lane. Passing _____ are the same as _____ for passenger cars.

Snowmobiles

Snowmobiles _____ on public roads, lands _____ waters must be registered _____ the State. Proof of _____ insurance is needed for _____. (See Chapter 2). You _____ be at least 14 _____ old to operate a _____ in public areas. Registration _____ must be displayed on _____ snowmobile at all times. _____ certificate of registration must _____ shown, upon request by _____ police officer.

For your _____, the law states that _____ shall not be operated _____ or alongside main streets _____ highways. Registered snowmobiles are _____ in these areas only _____:

* Crossing a public highway, _____ safe, is the shortest _____ route.

* It is necessary _____ operate alongside a highway _____ a short distance to _____ to a snowmobile area.

More information on laws covering snowmobiles is contained in the "Snowmobile Safety Handbook." It may

be obtained from the New Jersey Division of Motor Vehicles.

CLOZE READINGS from the DRIVER MANUAL of the State of New Jersey

Chapter 6

Student's Name: _____

Grade: _____

Date: _____

School: _____

Check One: Male: _____ Female: _____

Have you ever taken Driver Education? _____

CLOZE
FORM B

SPECIAL VEHICLE RULES

Rules About Bicycles

When you ride your bicycle you must obey the same traffic laws as a car driver. Show with a signal _____ you are going to _____ or stop. Use hand _____ for turning and stopping. _____ will find the hand _____ on page 34 of _____ book. Ride your bicycle _____ the right side of _____ road or use a _____ path. Sometimes you are _____ allowed to ride on _____ sidewalk. Then you should _____ off the sidewalk. More _____ two bicycles should not _____ alongside each other. Do _____ hold on to another _____ when you are riding _____ bicycle. Do not carry _____ extra person unless you _____ an attached seat. Be _____ you are in control _____ your bicycle at all _____. When you ride a _____, obey the rules and _____ safe.

The brakes on _____ bicycle should work well. _____ should have a bell _____ signal that others can _____ 100 feet away. You _____ not use a siren _____ whistle on your bicycle.

_____ night, when it is _____, you should have a _____ on the front of _____ bicycle. You should also _____ a red light on _____ back

of your bicycle. _____ people should be able _____ see the lights on _____ bicycle 500 feet away.

_____ can get more information _____ bicycles from the Division _____ Motor Vehicles.

Rules About Motorcycles

People who _____ motorcycles must obey all _____ laws. You must signal _____ turns and stops. If _____ motorcycle does not have _____ signals, then use hand _____. You will find the _____ hand signals on page _____.

Drive your motorcycle within _____ traffic lane. Do not _____ along the center lane _____ a road. Do not _____ between lanes of traffic _____ between traffic and parked _____. No more than two _____should ride beside each _____ in any one traffic _____. The rules for passing _____ a motorcycle are the _____ as for cars.

Rules About Snowmobiles

You _____ be at least 14 _____ old to drive a _____ in public areas.

To _____ a snowmobile on public _____, land or waters, you _____ register it with the _____ of New Jersey. You _____ to prove that you _____ liability insurance (lie a bil i ty in shoor ance) to register _____ snowmobile.

Liability insurance means _____ you can pay for _____ cost of injury and _____ damage you may cause _____ an accident. Chapter 2 _____ you more about liability _____. Put your registration number _____ your snowmobile where others _____ see it. When you _____ your snowmobile you will _____ a registration paper. This _____ called a registration certificate (cer tif i cat). _____ must show your registration _____ if a policeman asks _____ it.

The state law _____ that you may not _____ a snowmobile alongside a _____ road or highway. This _____ to protect you. You _____ take your registered snowmobile _____ or beside a main _____ or highway when crossing _____ highway is the shortest _____. You may only do _____ if it is safe _____ go. You may have _____ ride alongside a main _____ for a short distance _____ get to a snowmobile _____. You are allowed to _____ this.

There is a book called "Snowmobile Safety Handbook." It has more information on snowmobile laws in it. You can get it from the New Jersey Division of Motor Vehicles.